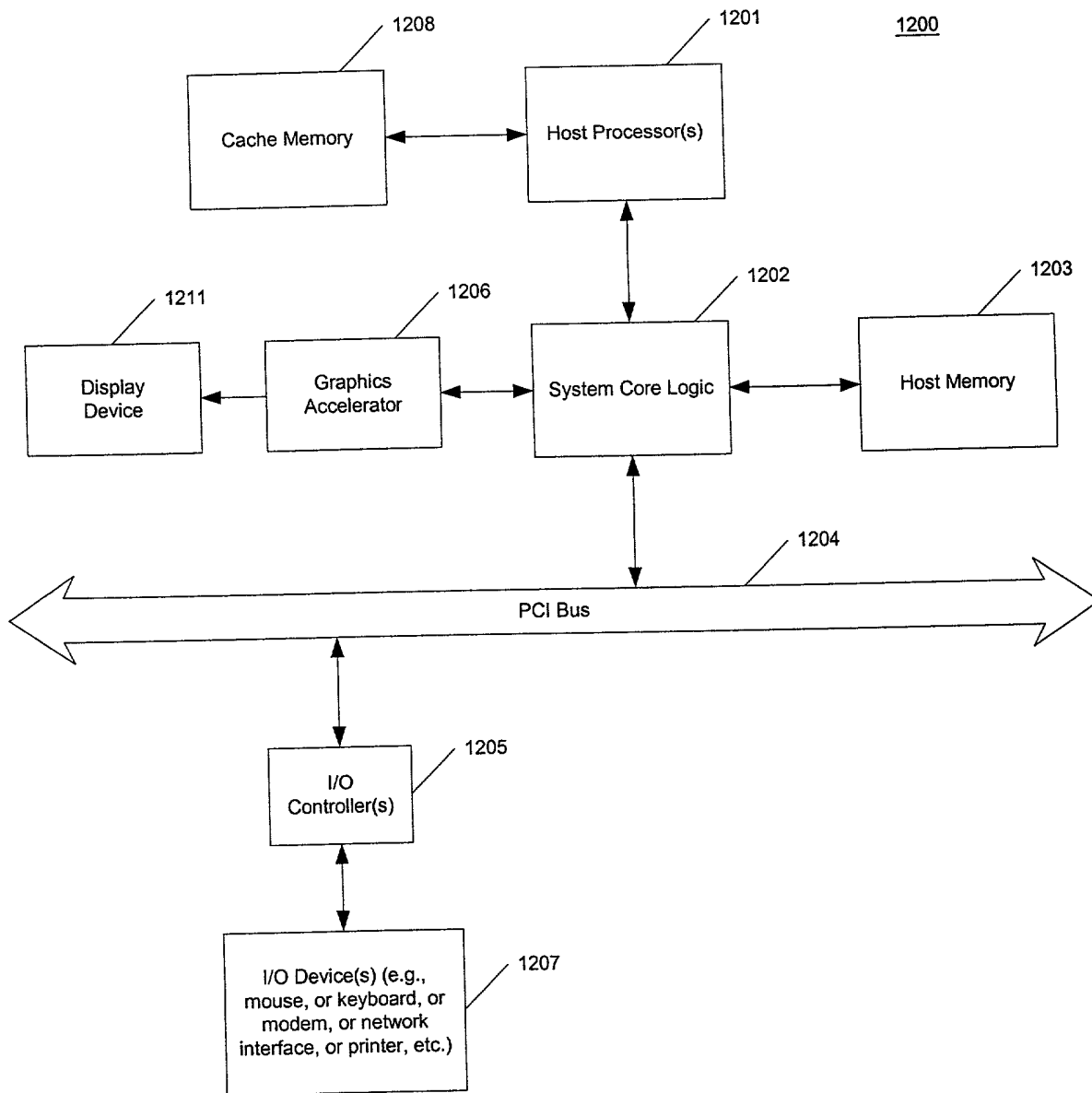


Figure 1



**Figure 2**

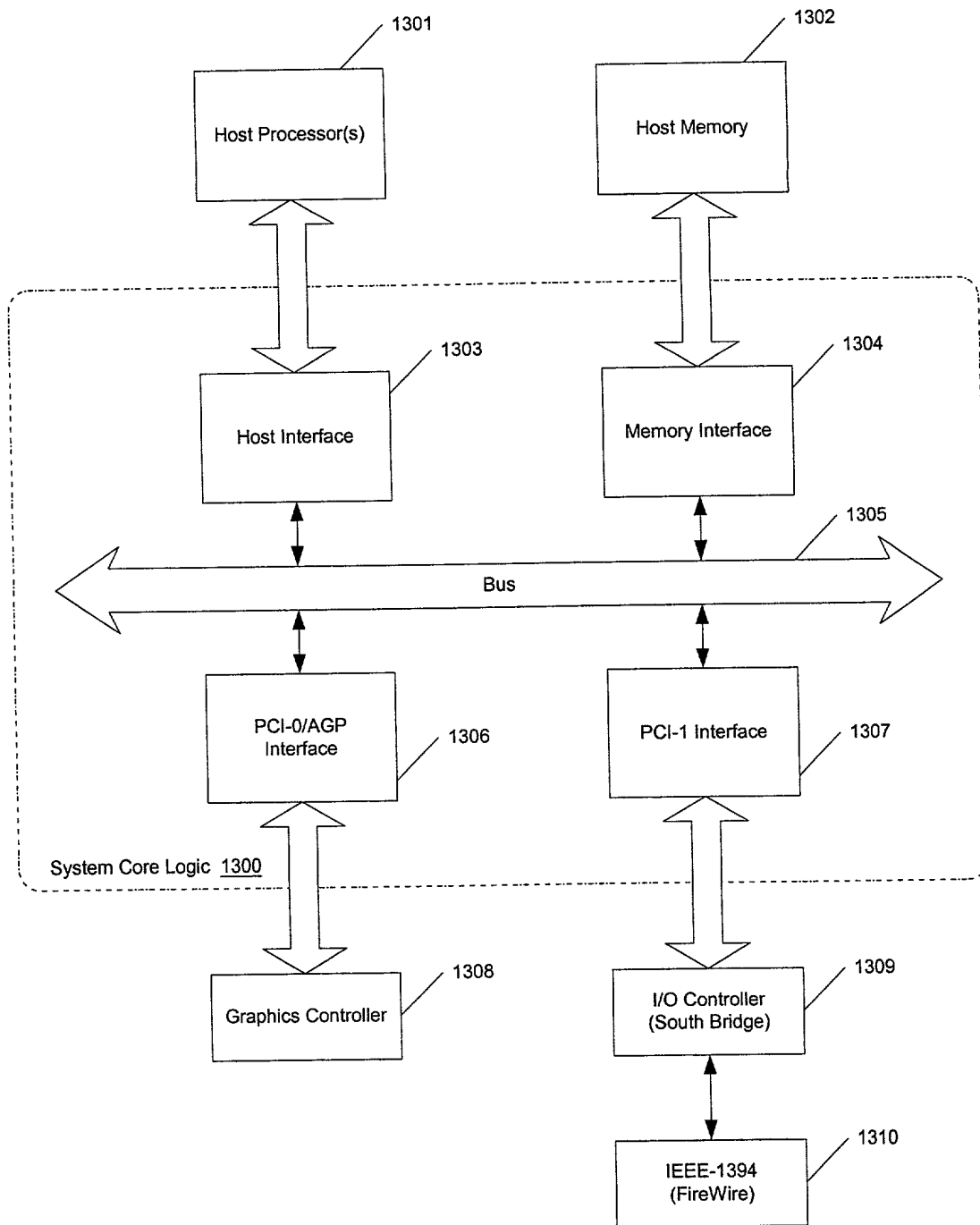


Figure 3

FIG. 4A

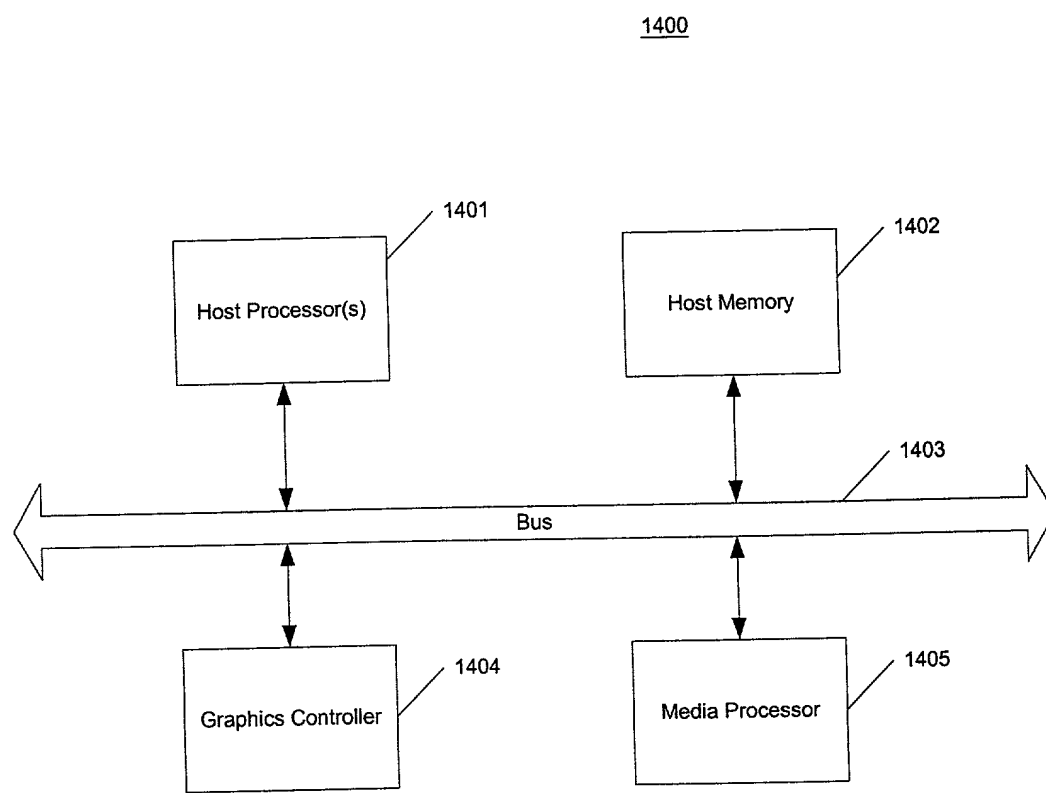


Figure 4A

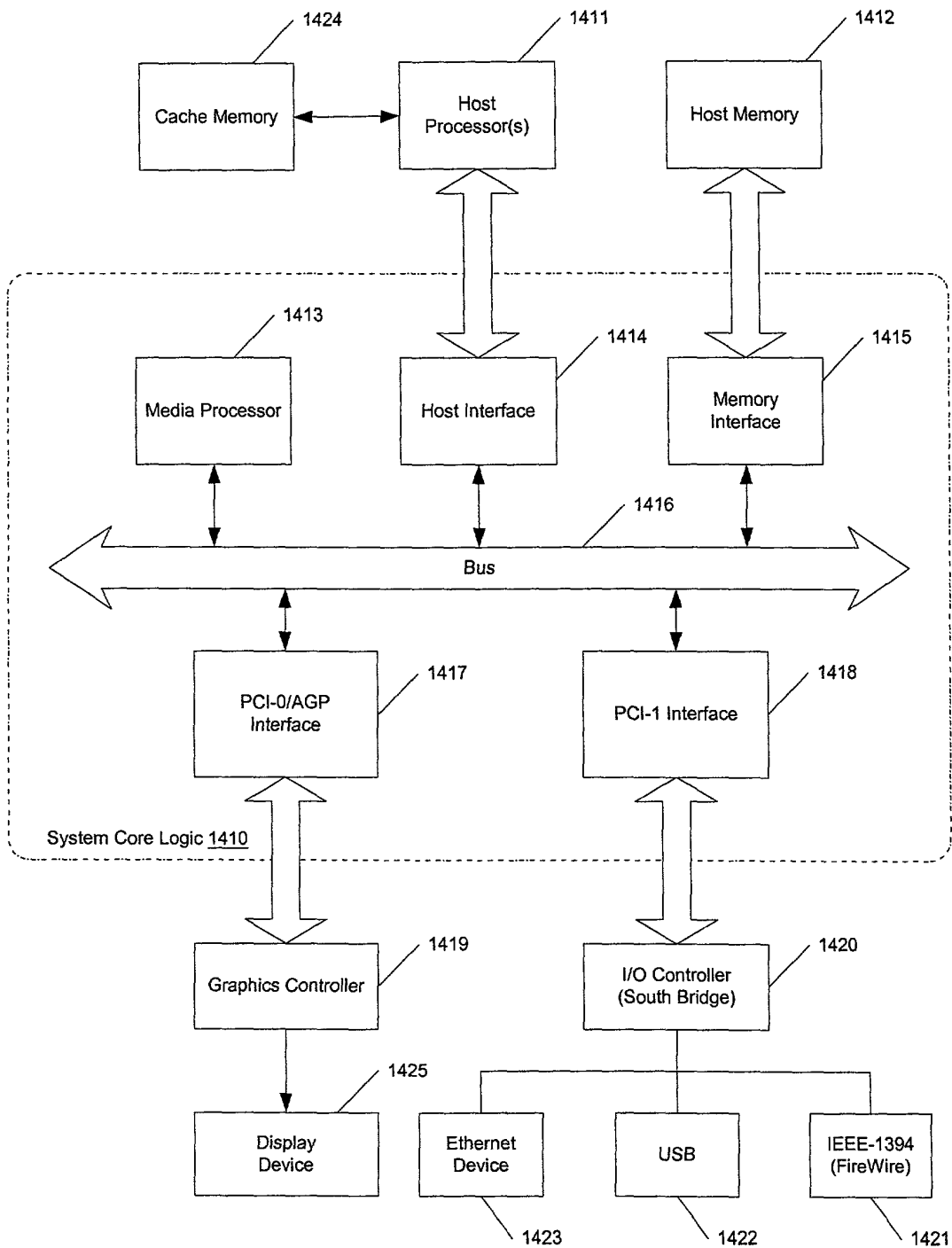


Figure 4B

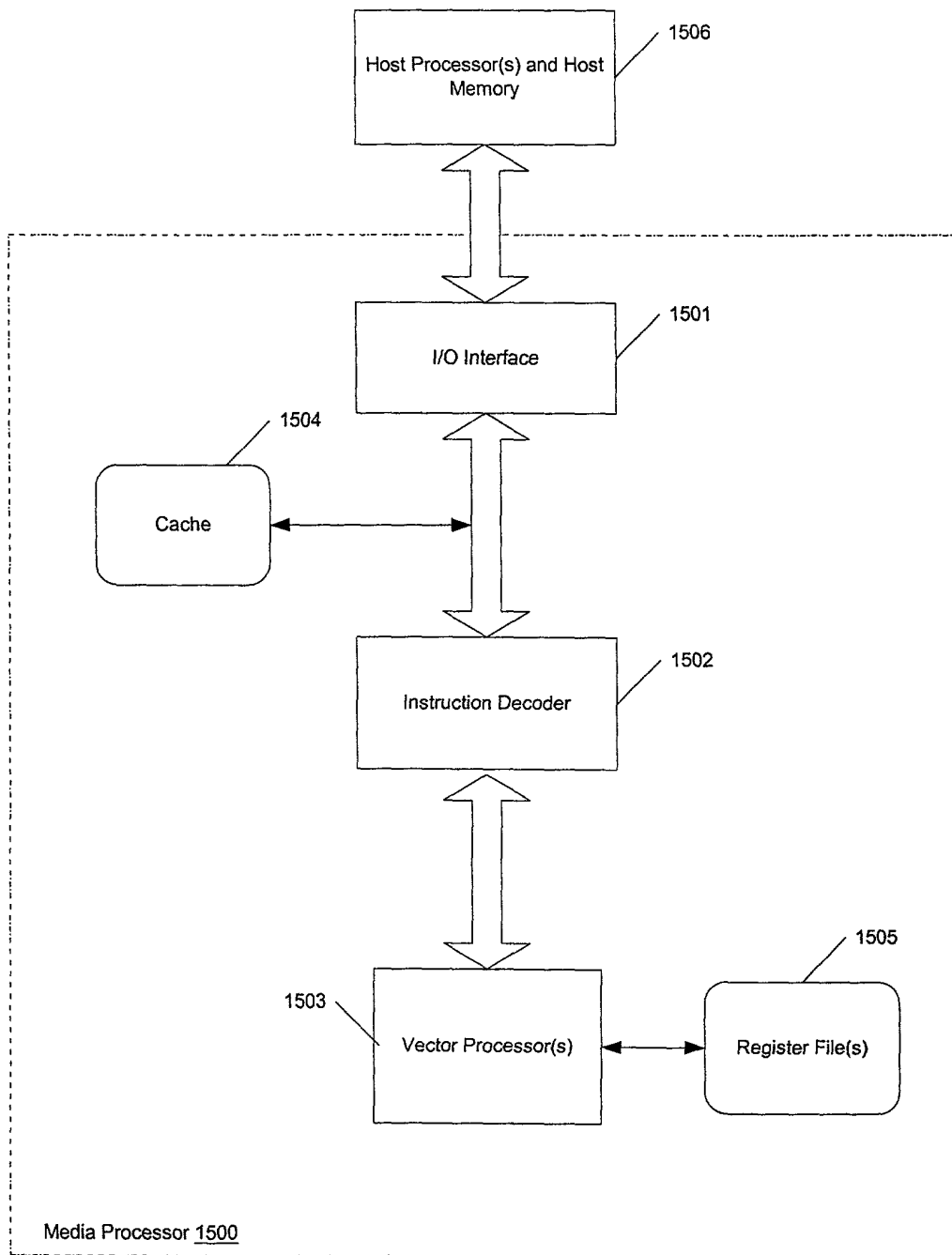


Figure 5A

TOP SECRET 6536004

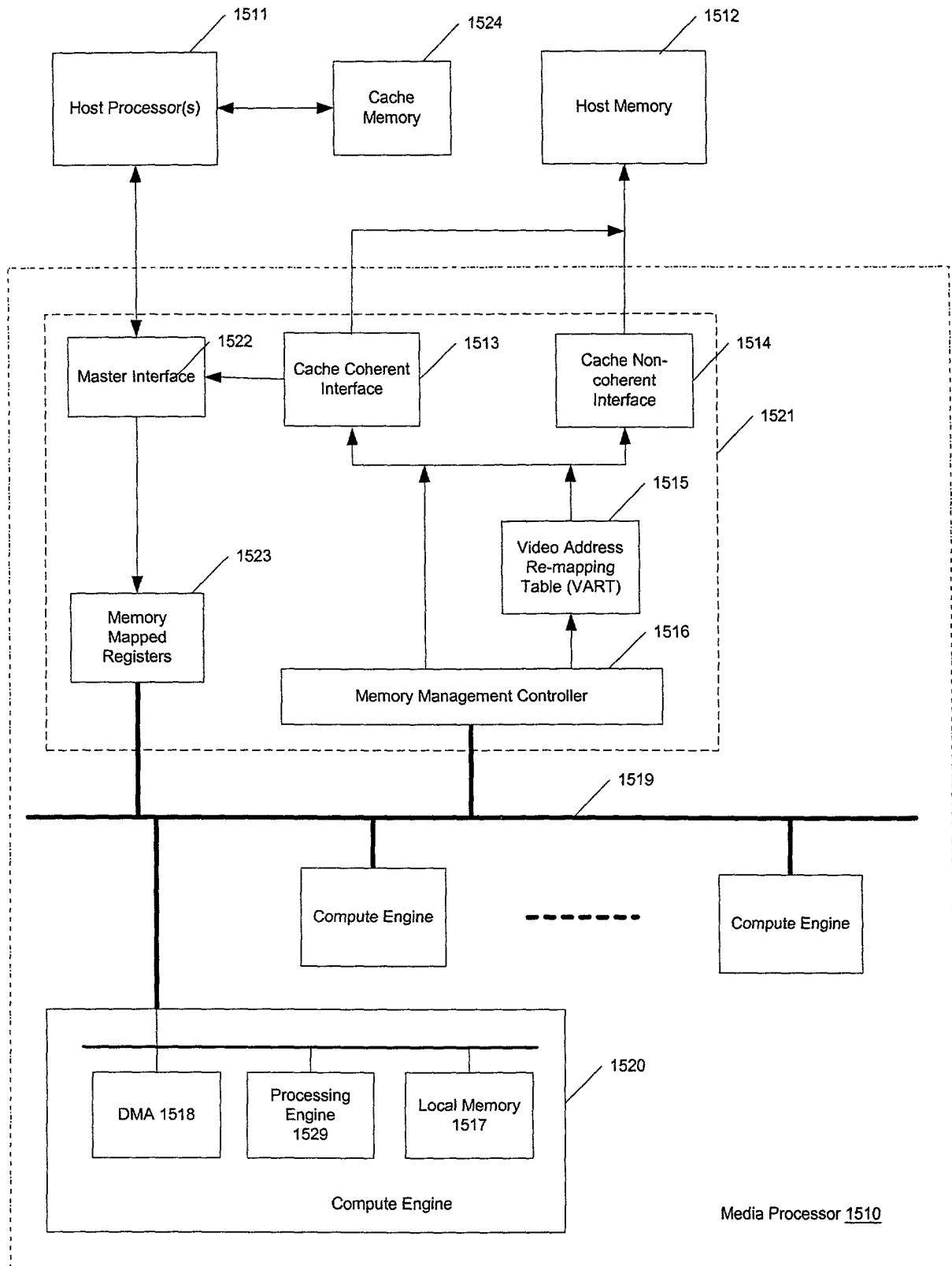
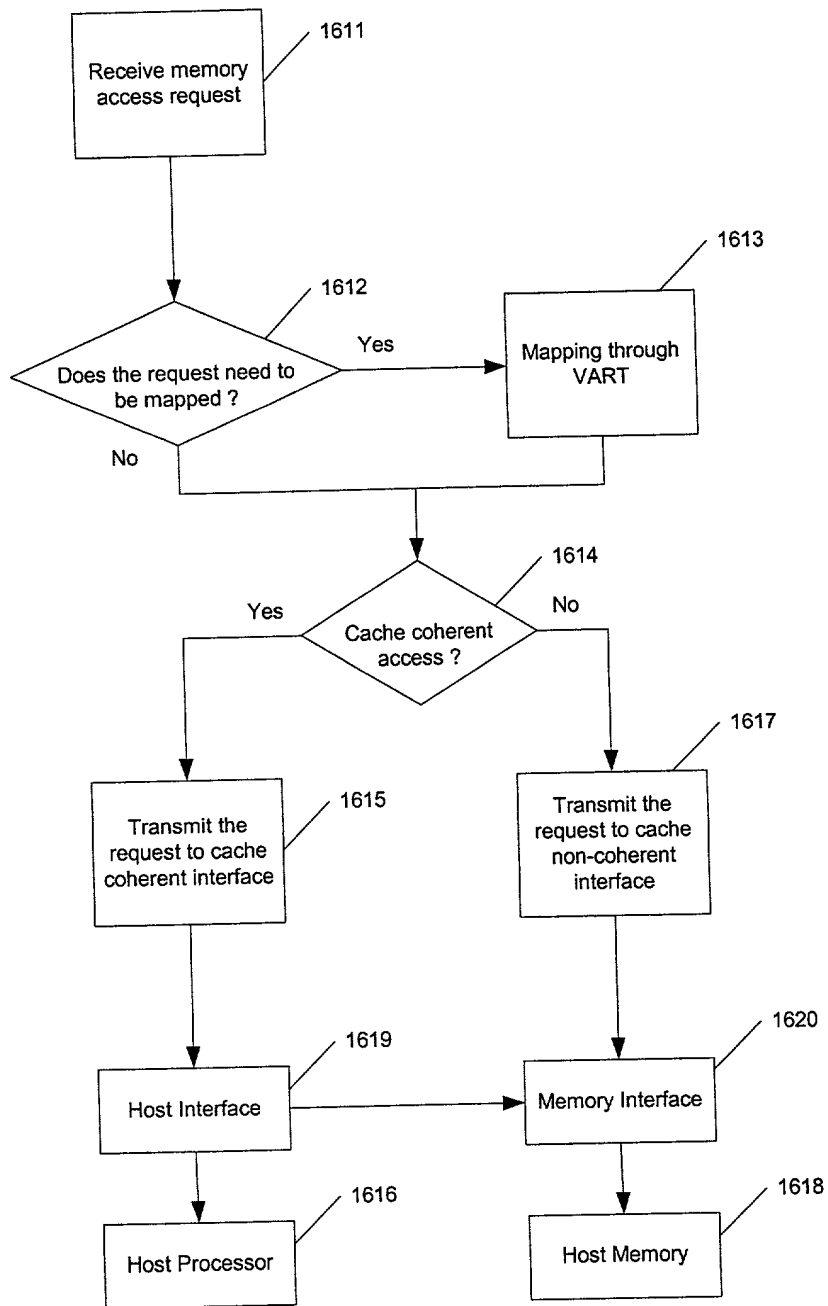
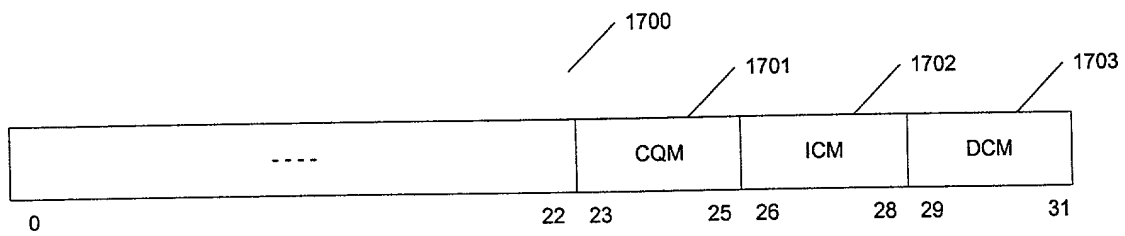


Figure 5B



**Figure 6**





Memory Access Mode Code	
Code	Description
0 - -	Mapped
100	Unmapped and coherent
101	Unmapped and non-coherent
110	if (LogicalAddress[0] = 0) then mapped else unmapped and coherent
111	if (LogicalAddress[0] = 0 ) then mapped else unmapped and non-coherent

**Figure 7**

1800

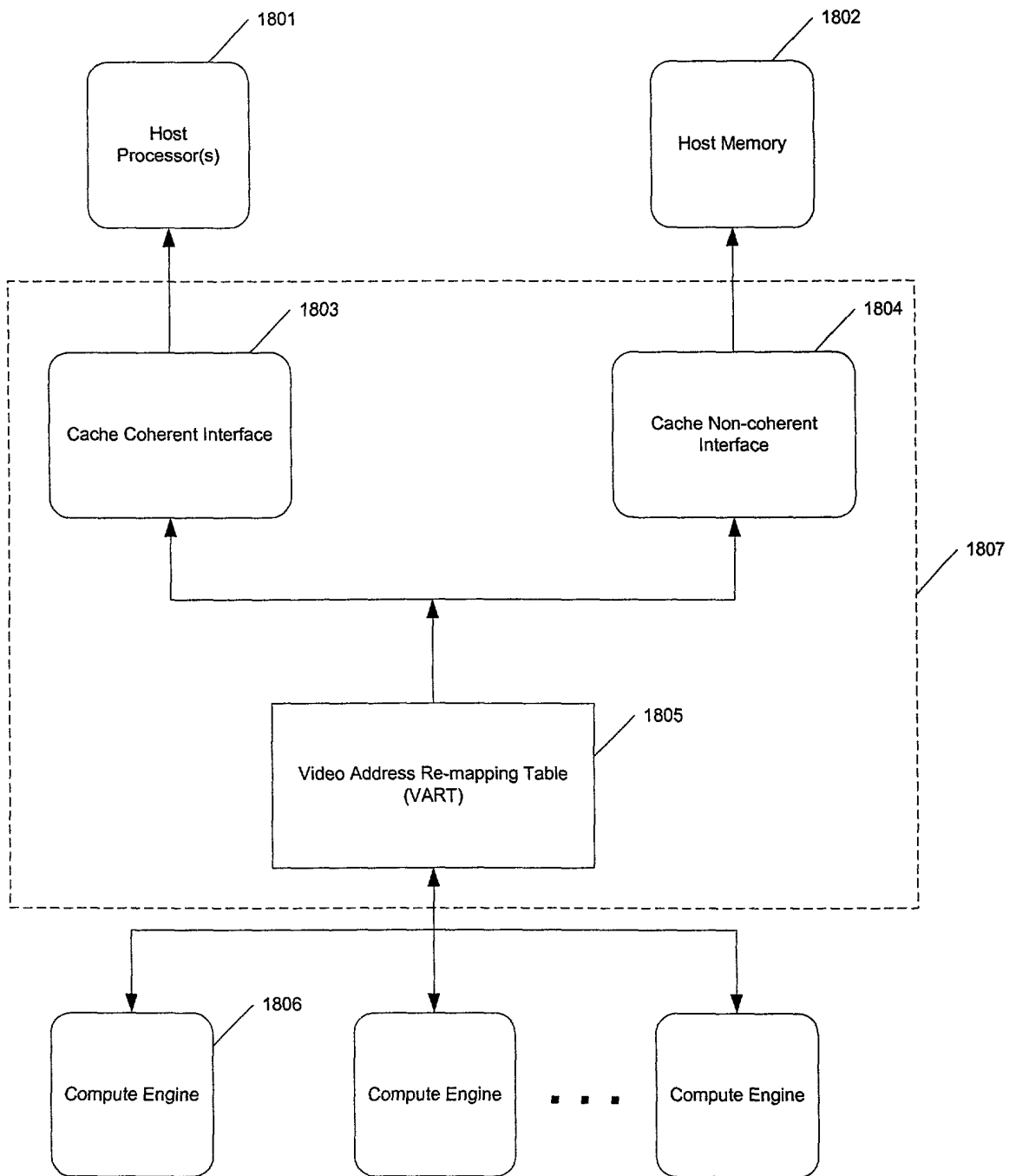
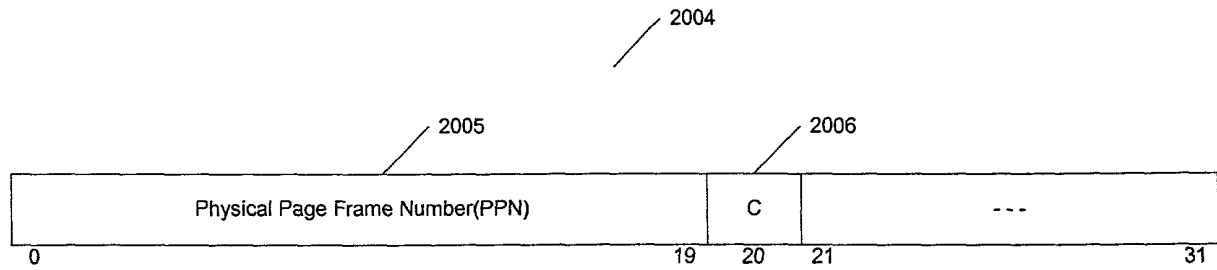
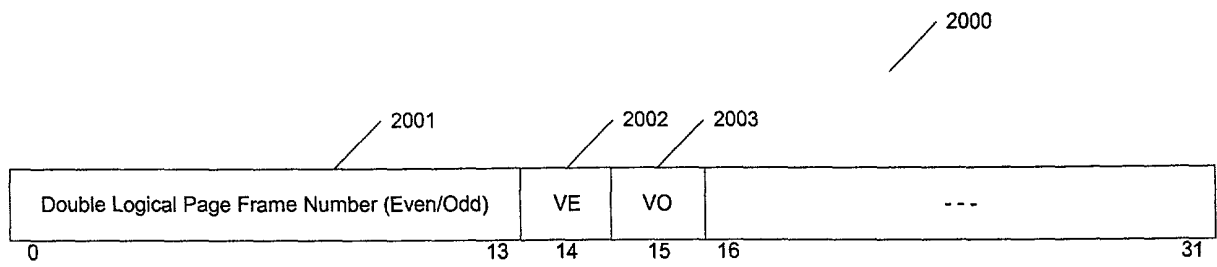
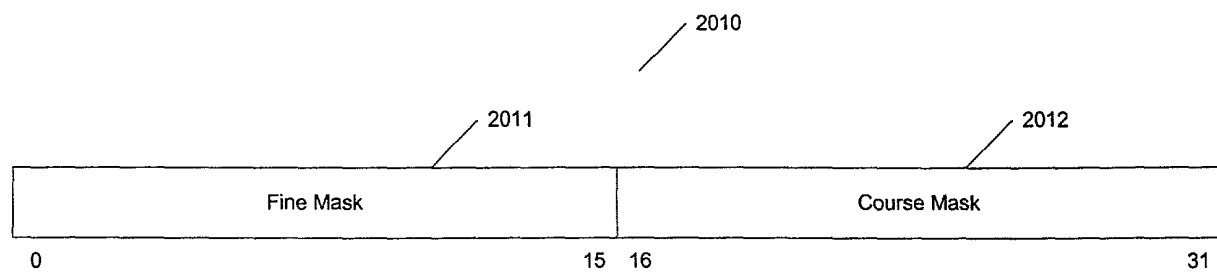


Figure 8





**Figure 10A**



**Figure 10B**

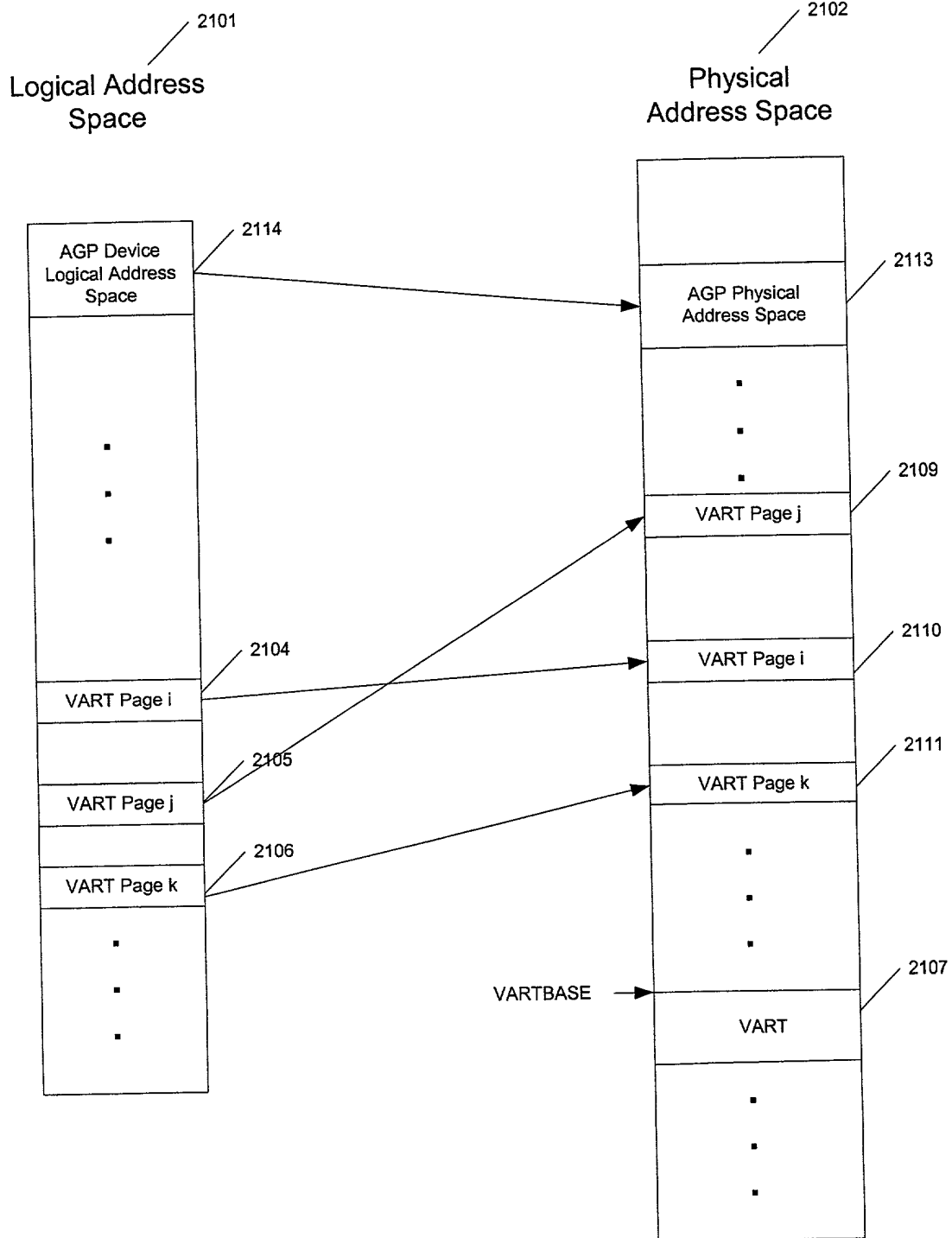
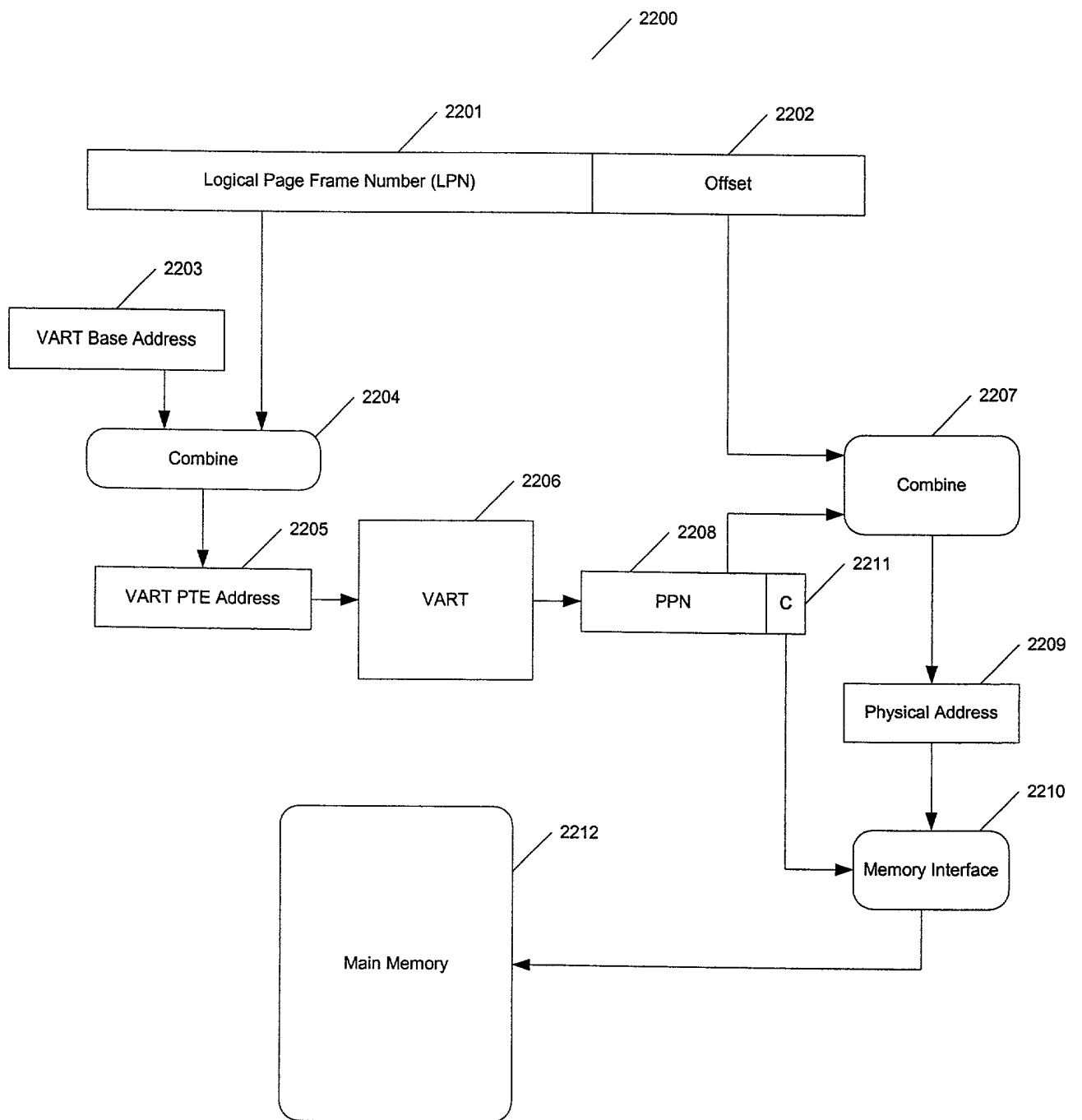
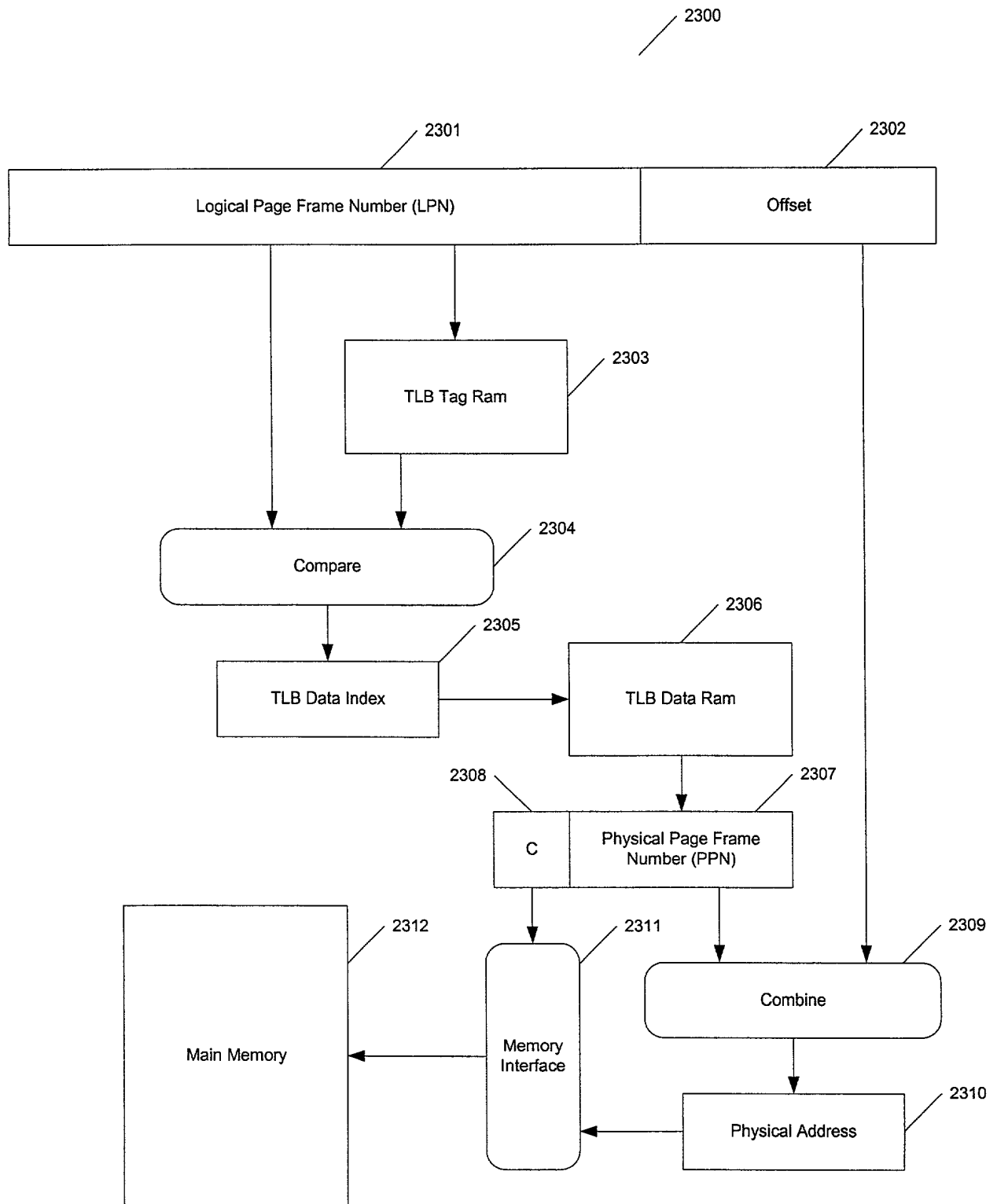


Figure 11



**Figure 12**



**Figure 13**

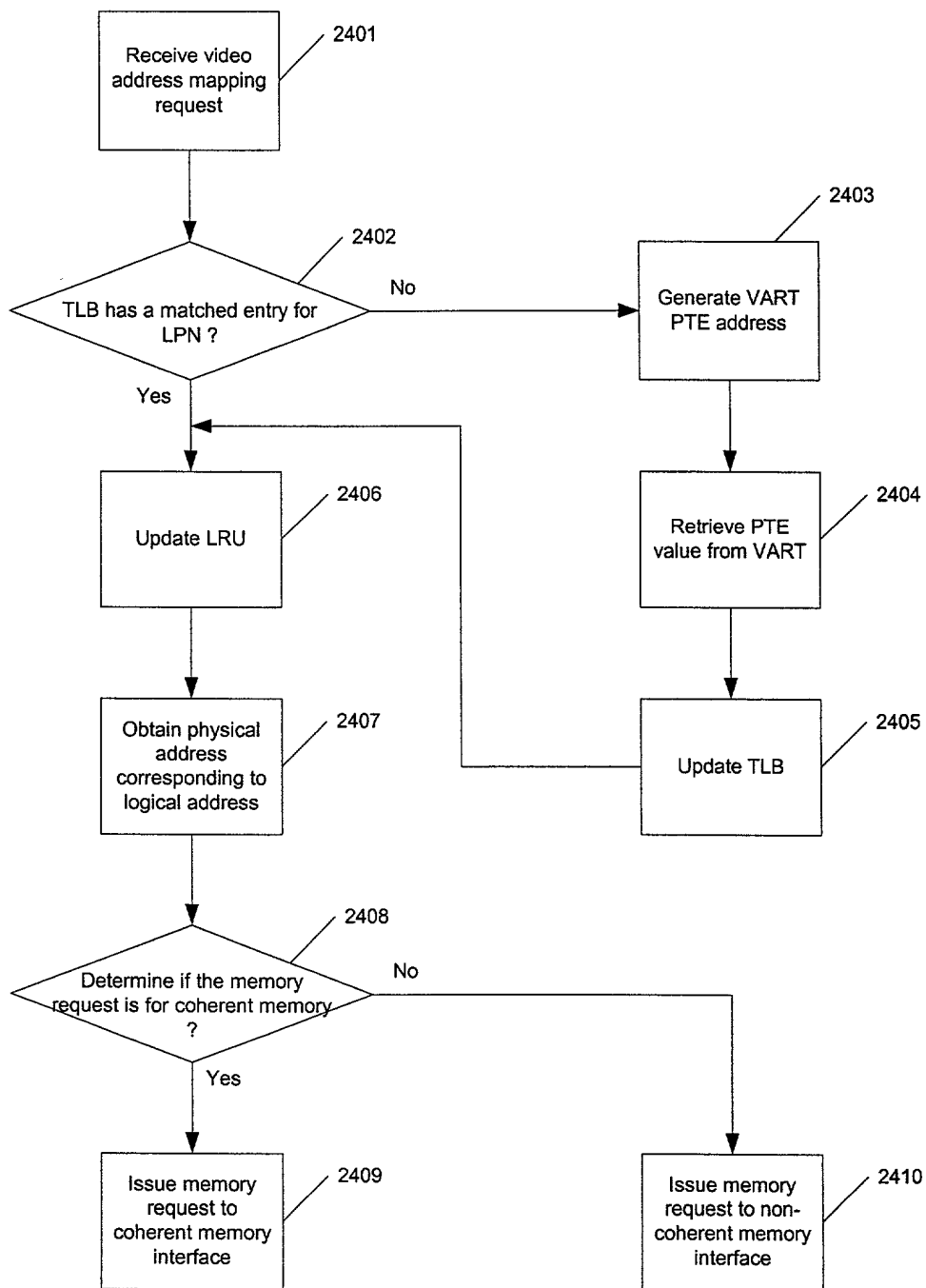


Figure 14



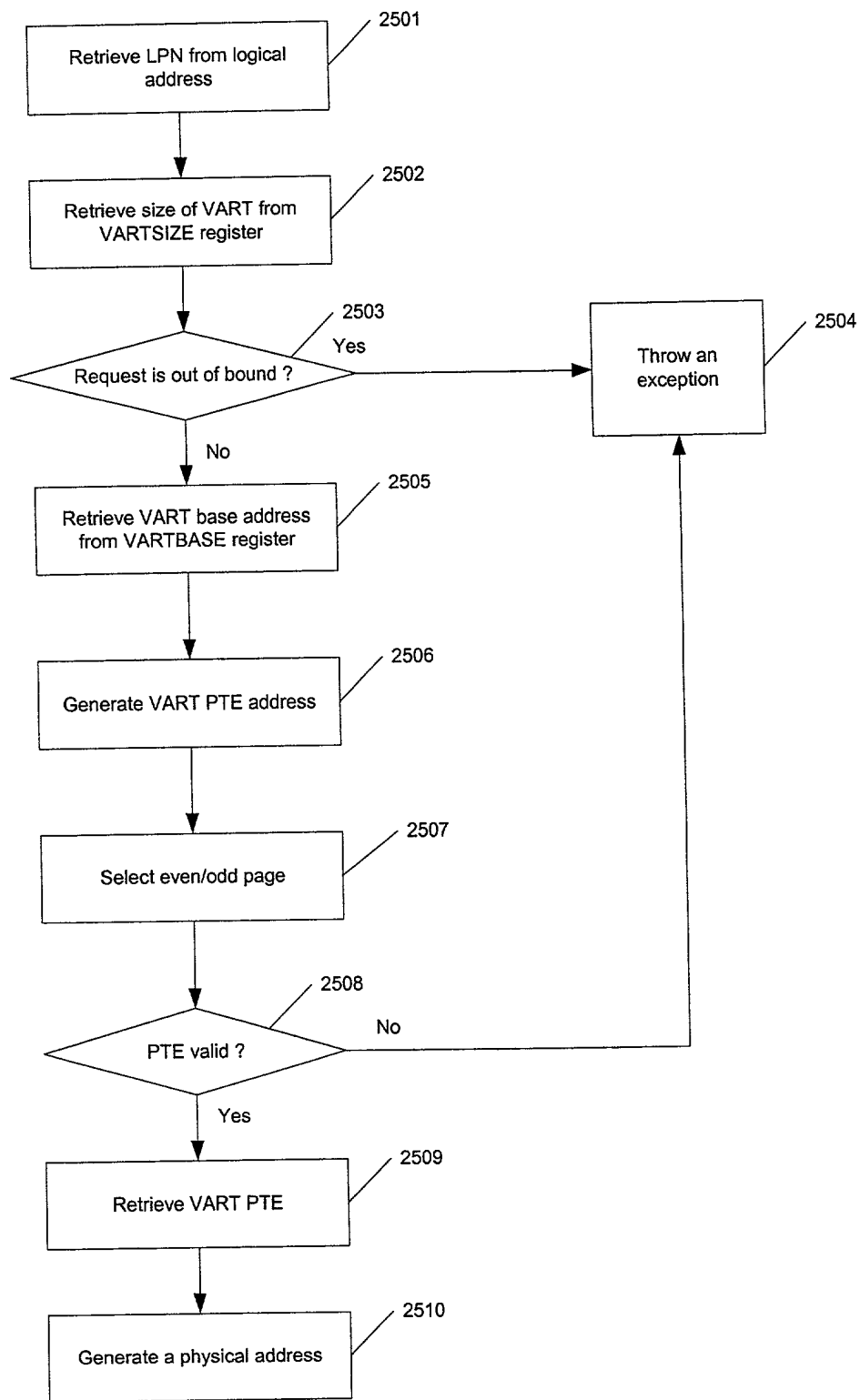


Figure 15

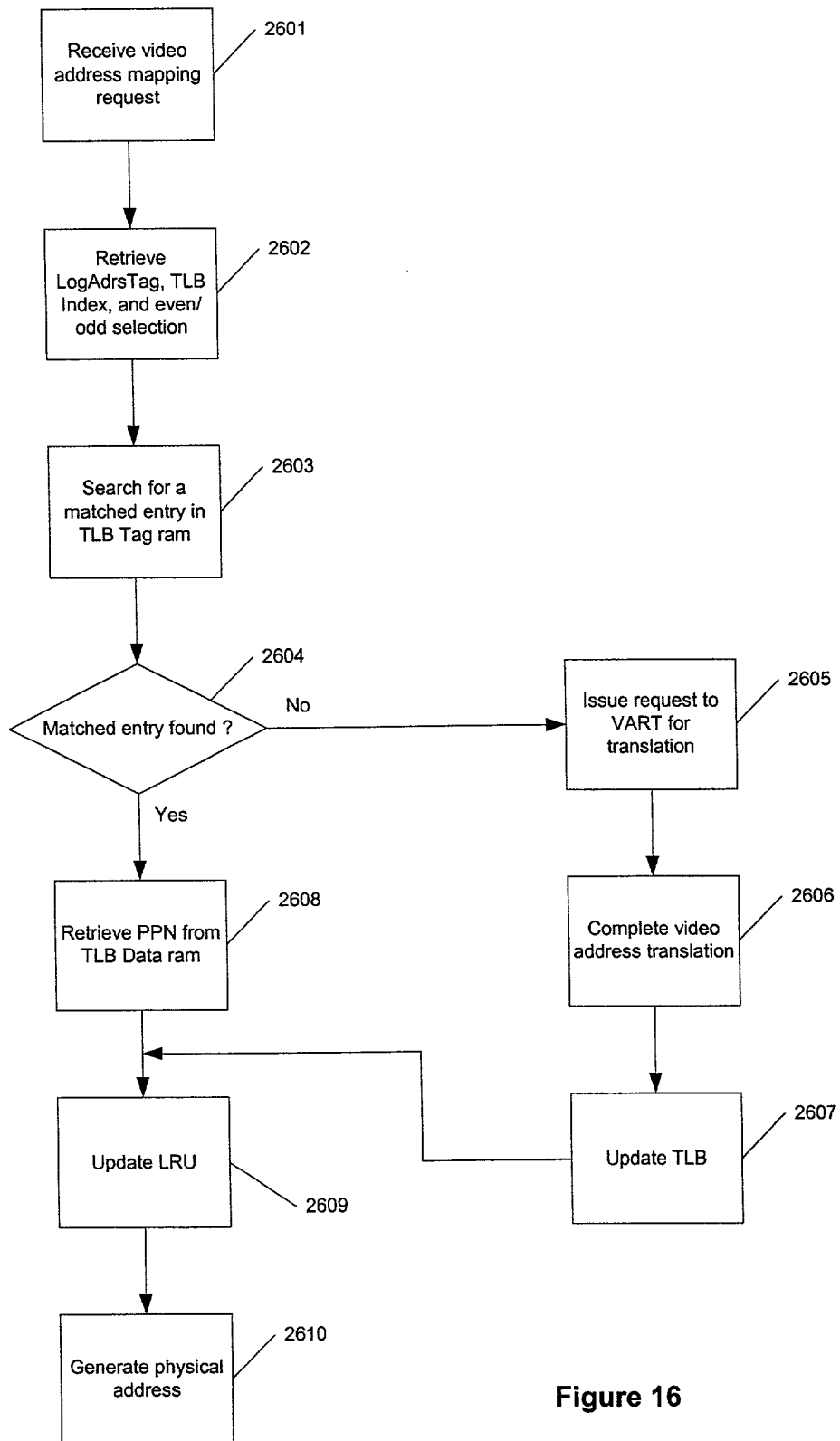


Figure 16

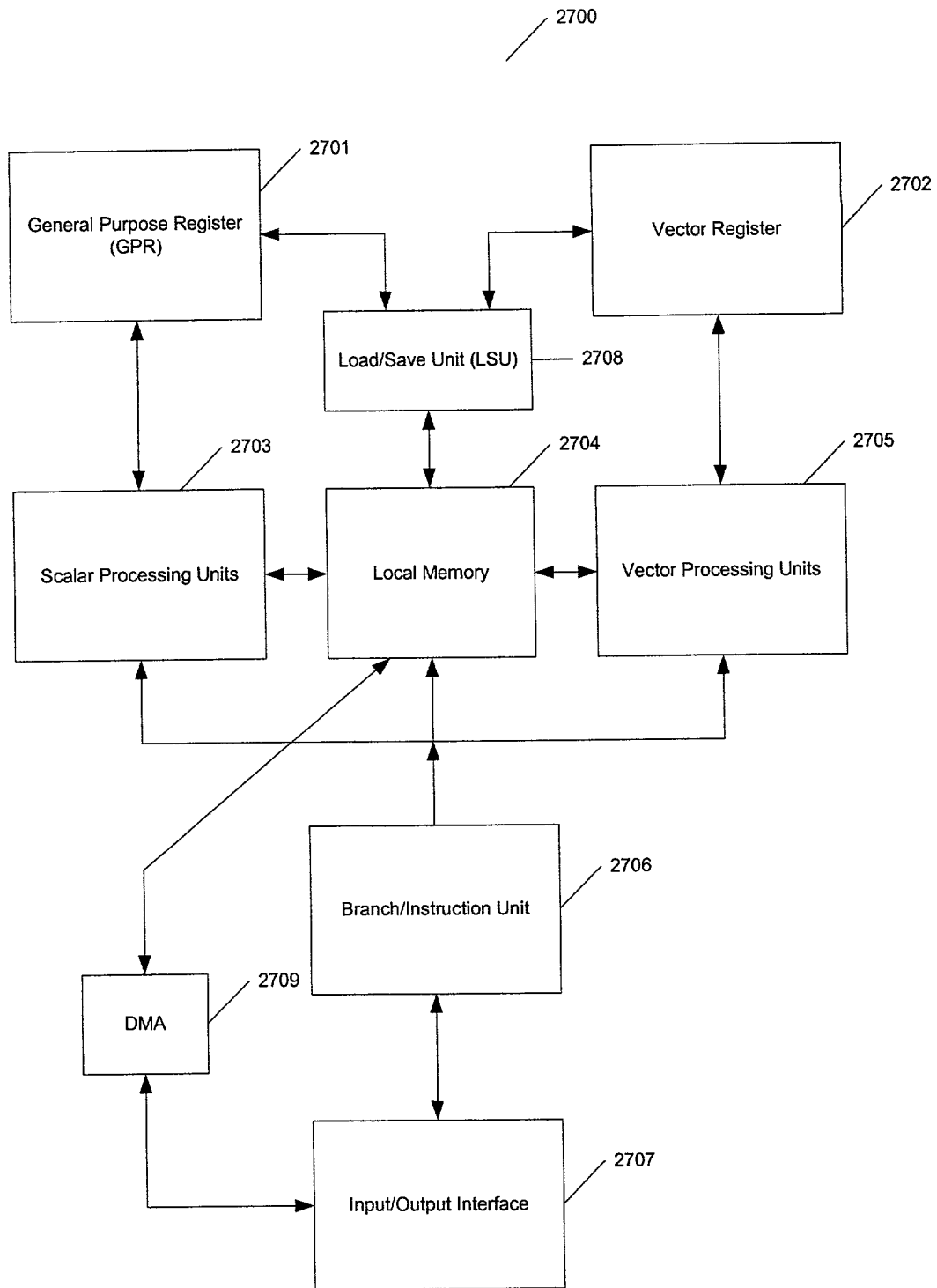


Figure 17

2800

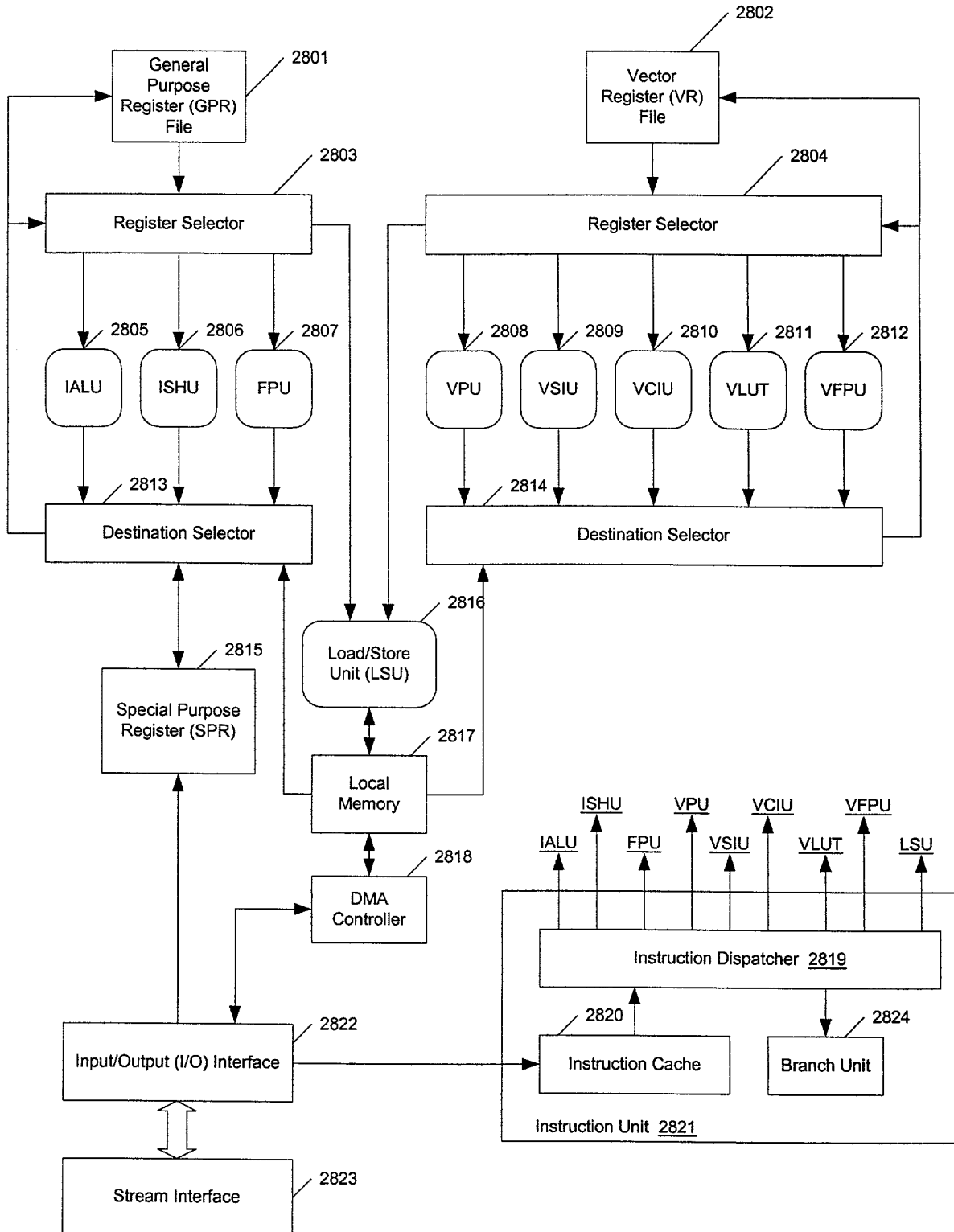
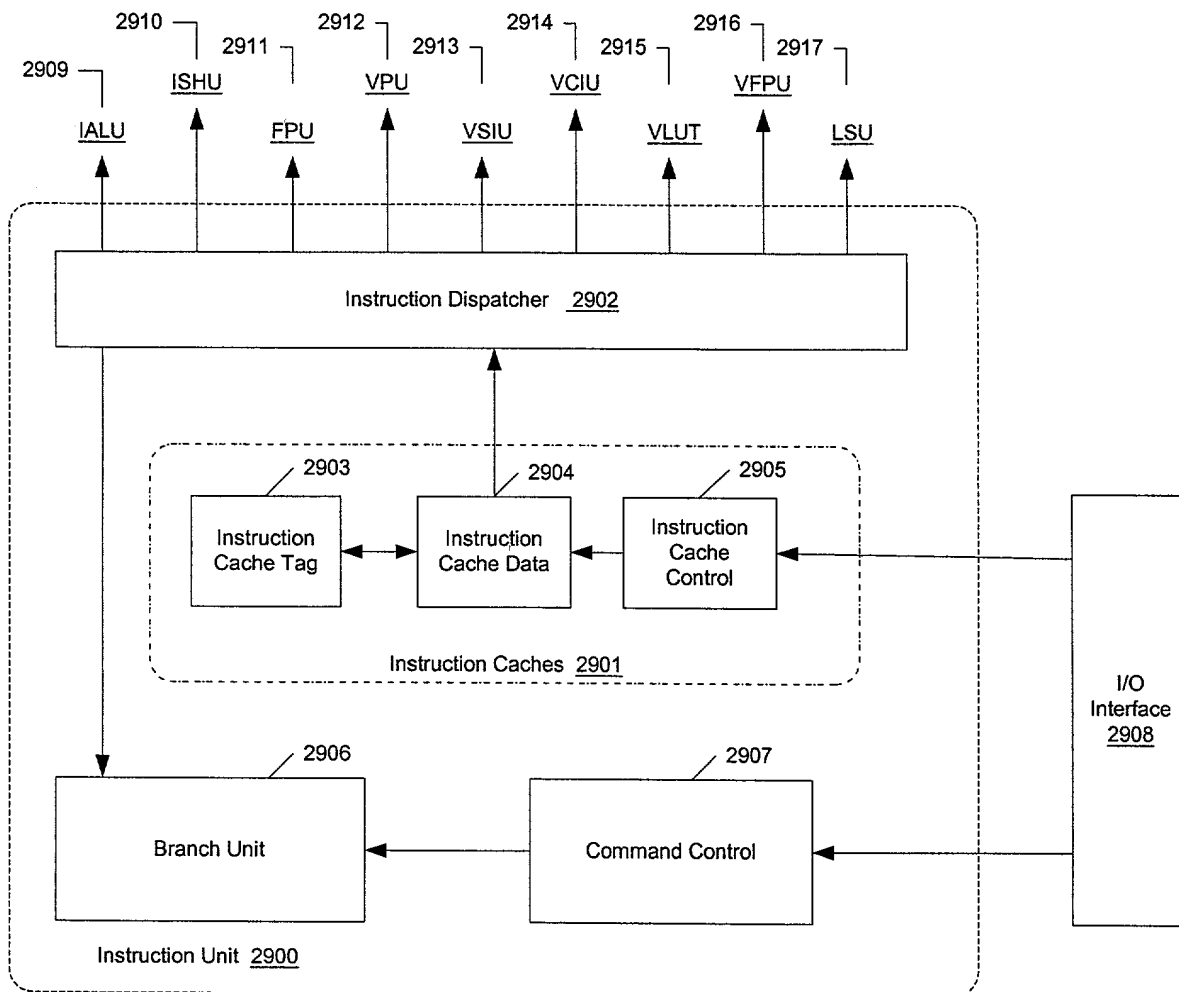


Figure 18



**Figure 19A**

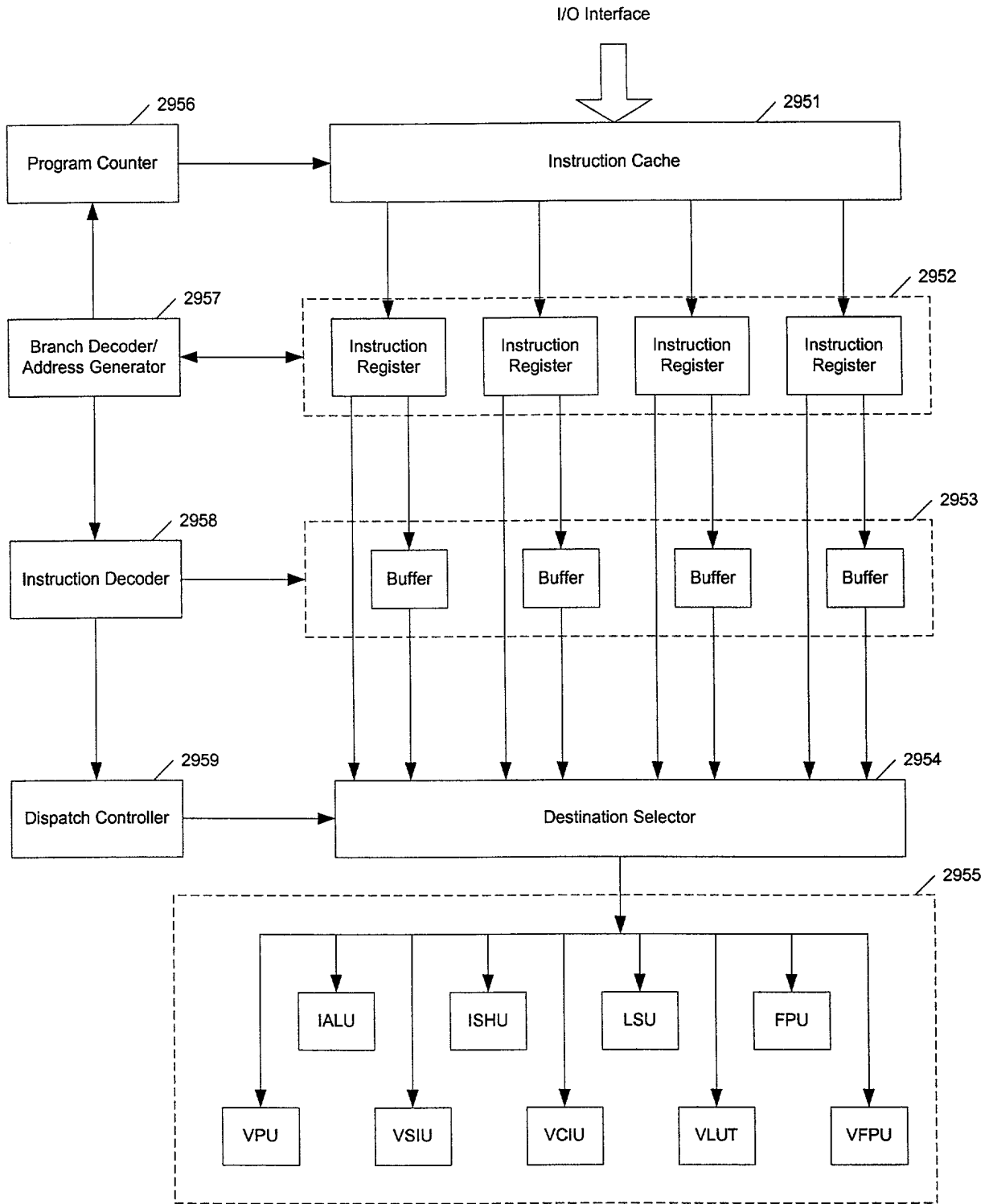
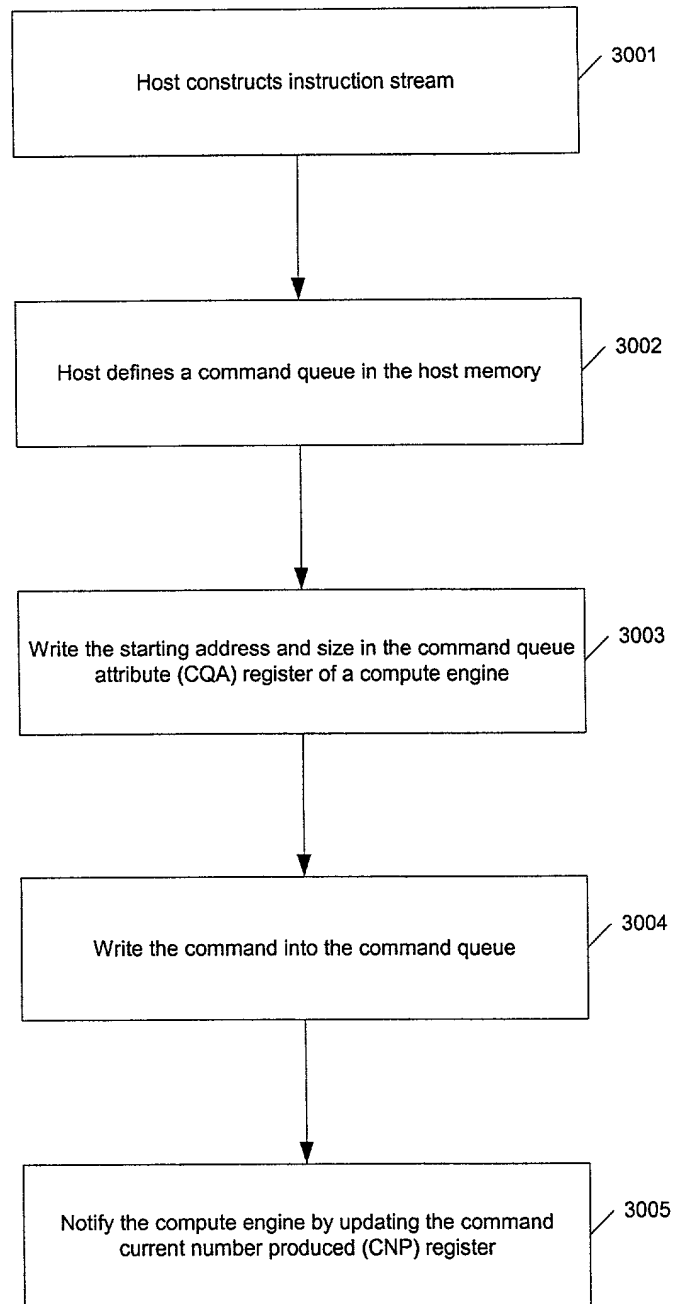


Figure 19B



**Figure 20A**

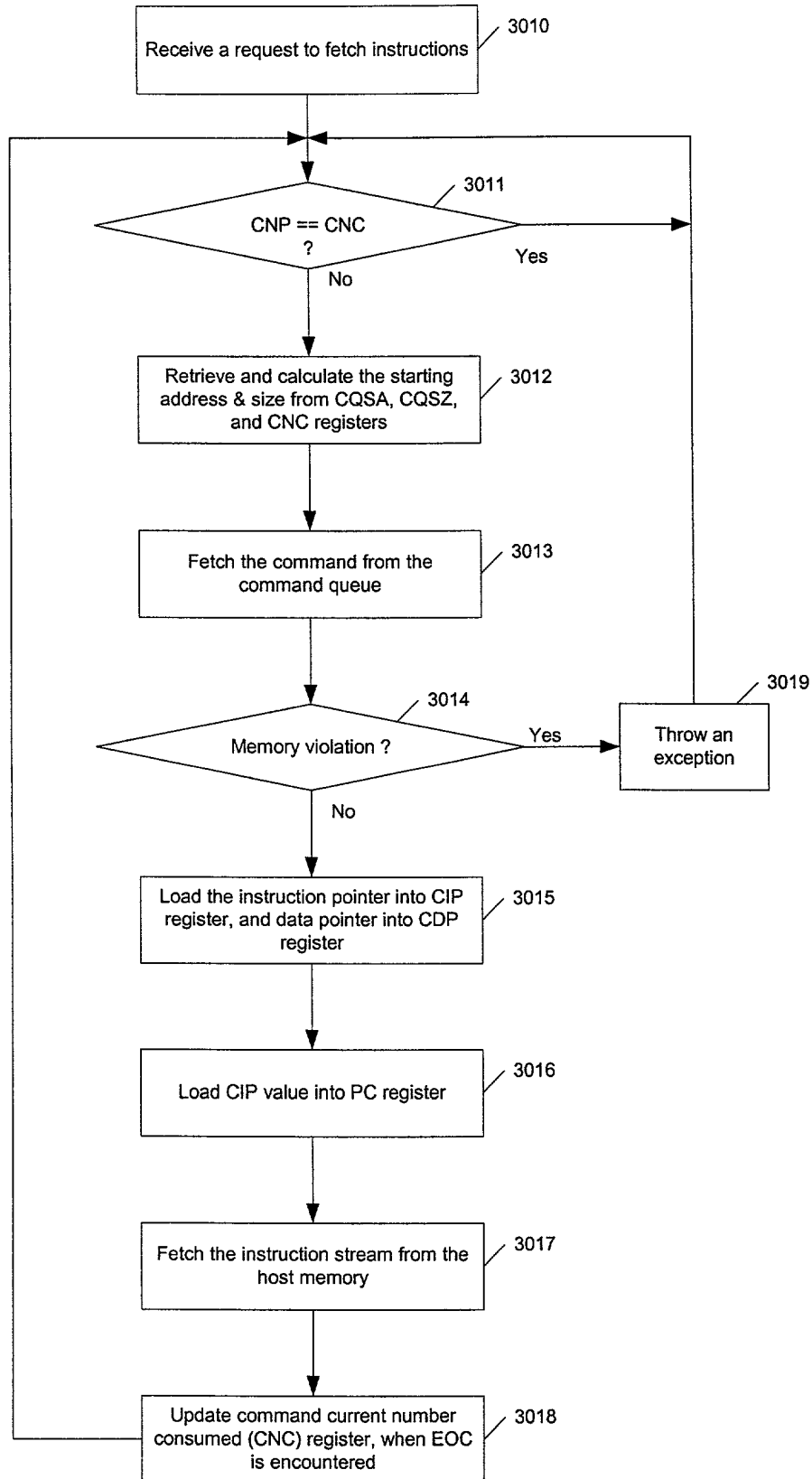


Figure 20B



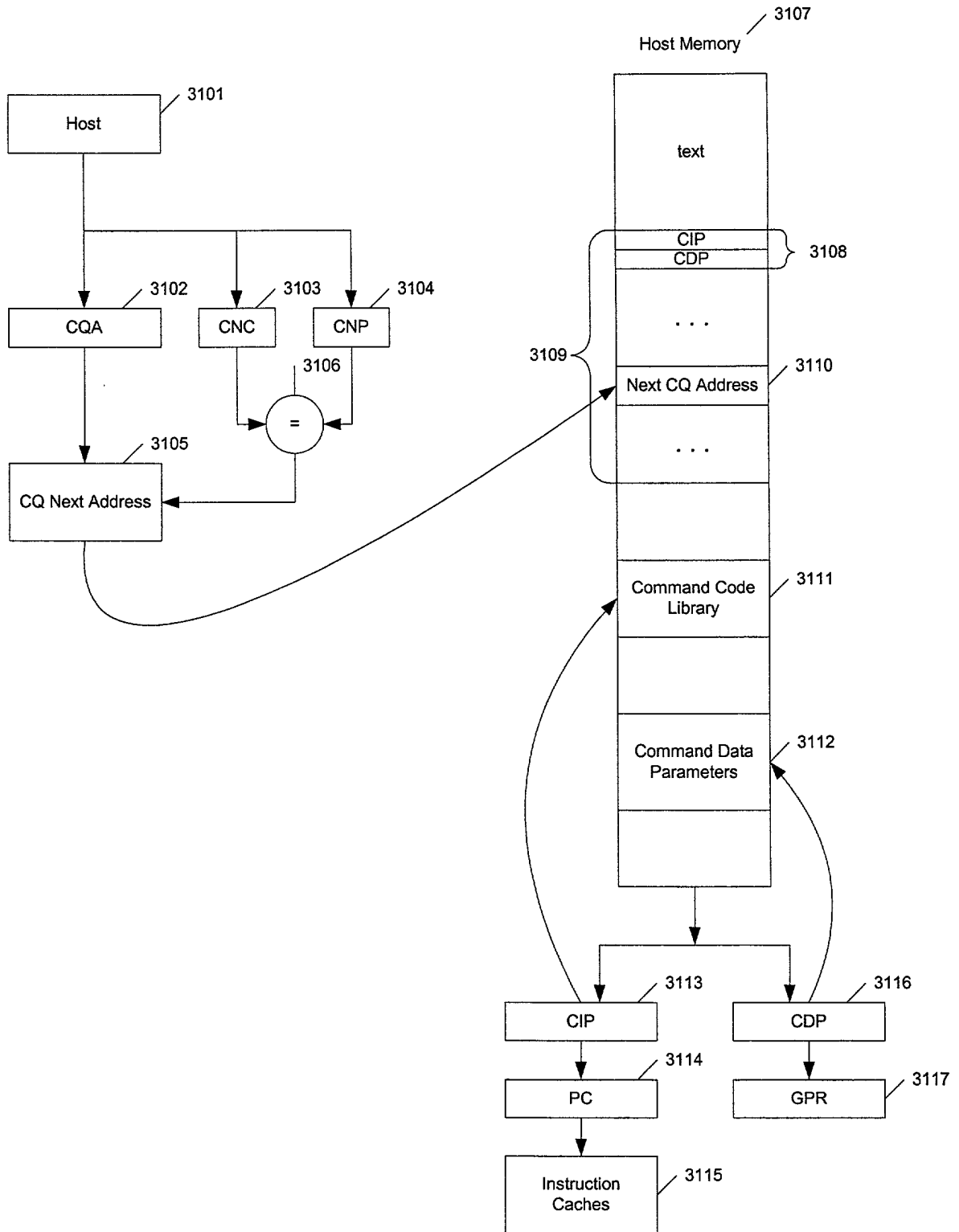
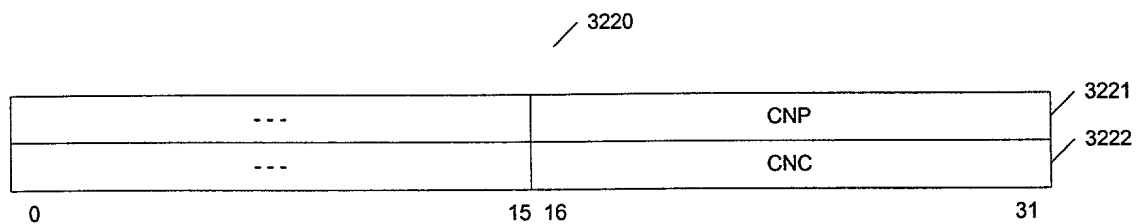
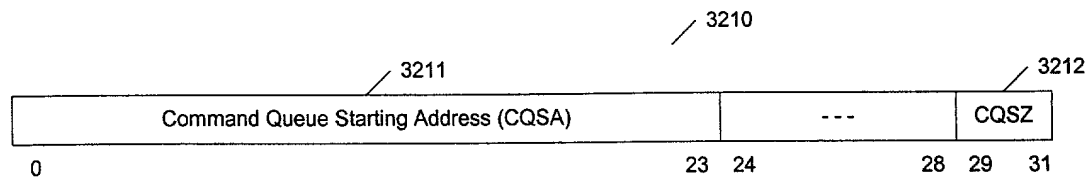
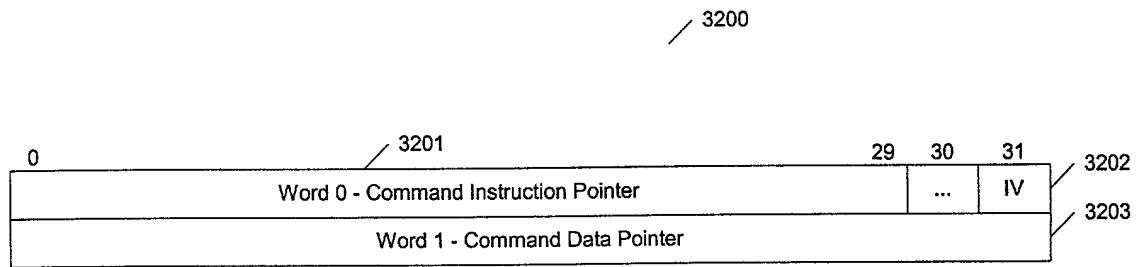


Figure 21



3230

Command Queue Size (CQSZ) Code and Next Address Generation				
Code	Size (bytes)	Command Queue Next Address [0:31]		
000	256	CQSA [0:23]	CNC [11:15]	000
001	512	CQSA [0:22]	CNC [10:15]	000
010	1024	CQSA [0:21]	CNC [9:15]	000
011	2048	CQSA [0:20]	CNC [8:15]	000
100	4096	CQSA [0:19]	CNC [7:15]	000

0 19 20 21 22 23 24 28 29 31

3231 3232

3233

Figure 22

3300

Priority Number	Functional Group Name	3301
0	IALU - Integer Arithmetic/Logical Unit	
1	ISHU - Integer Shift Unit	
2	LSU - Load/Store Unit	
3	VPU - Vector Permute Unit	
4	VSIU - Vector Simple Integer Unit	
5	VCIU - Vector Complex Integer Unit	
6	VLUT - Vector Look-up Table Unit	
7	BRU - Branch Unit	3302

Figure 23

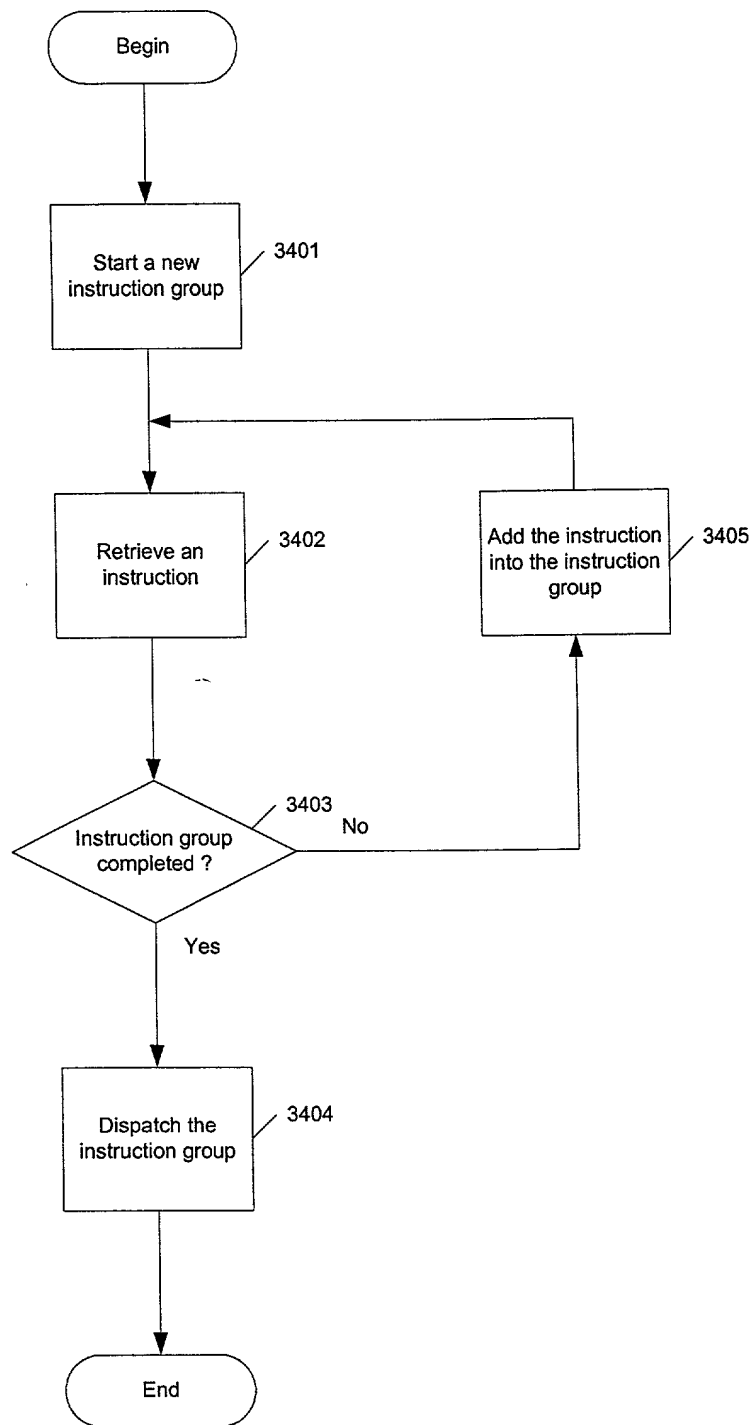


Figure 24

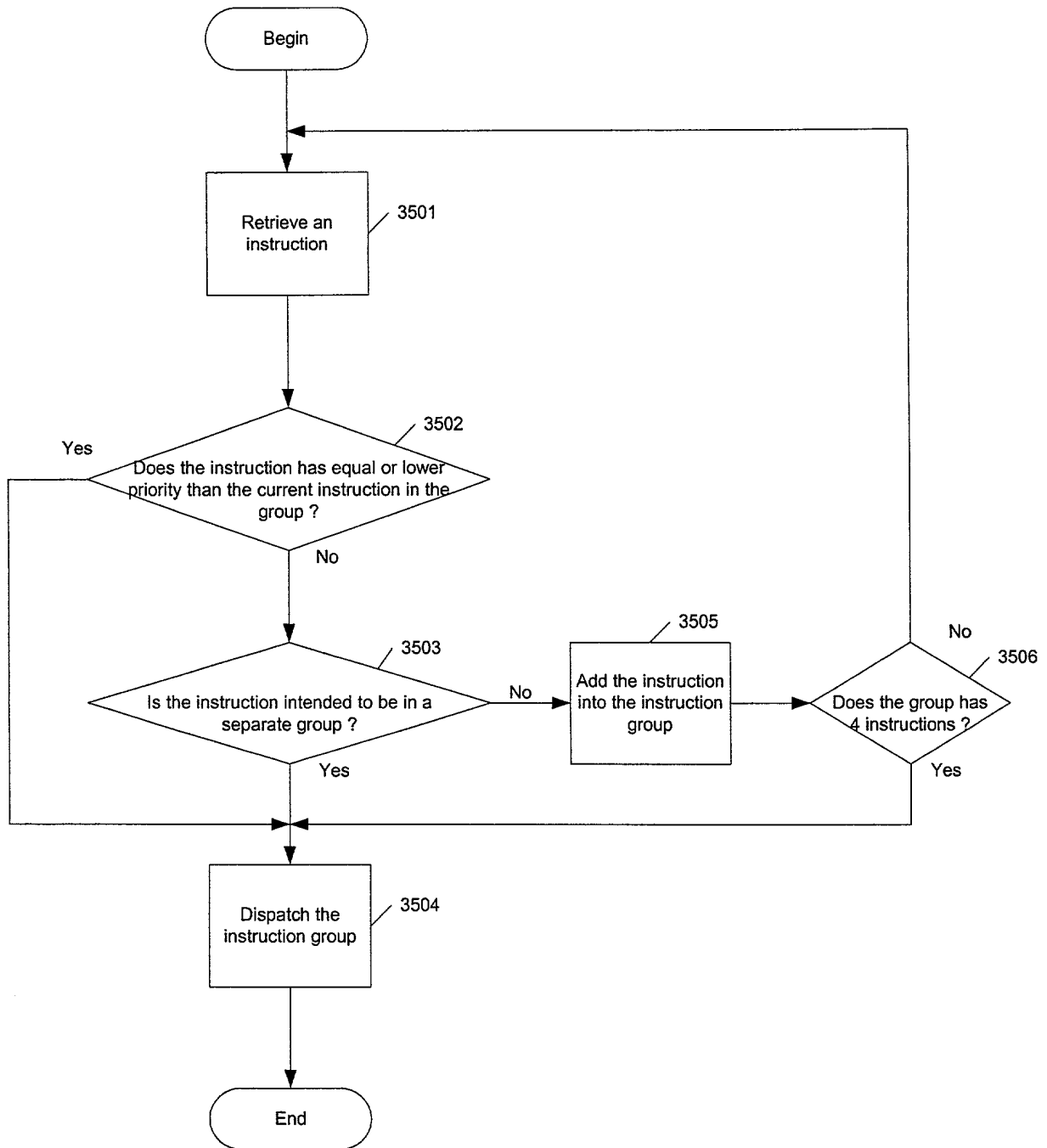


Figure 25

3600

Functional Unit	Latency	Dispatch Rate
IALU - not multiply or divide	2	1
IALU - multiply	19	19
IALU - divide	35	35
ISHU	2	1
LSU - non-DMA address update	2	1
LSU - non-DMA load data update	3	1
LSU - non-DMA store	1	1
LSU - DMA instructions	1	1
VPU	2	1
VSIU	2	1
VCIU	6	1
VLUT - reads, vwid	4	1
VLUT - writes	1	1
Branch instruction	1	1

Figure 26

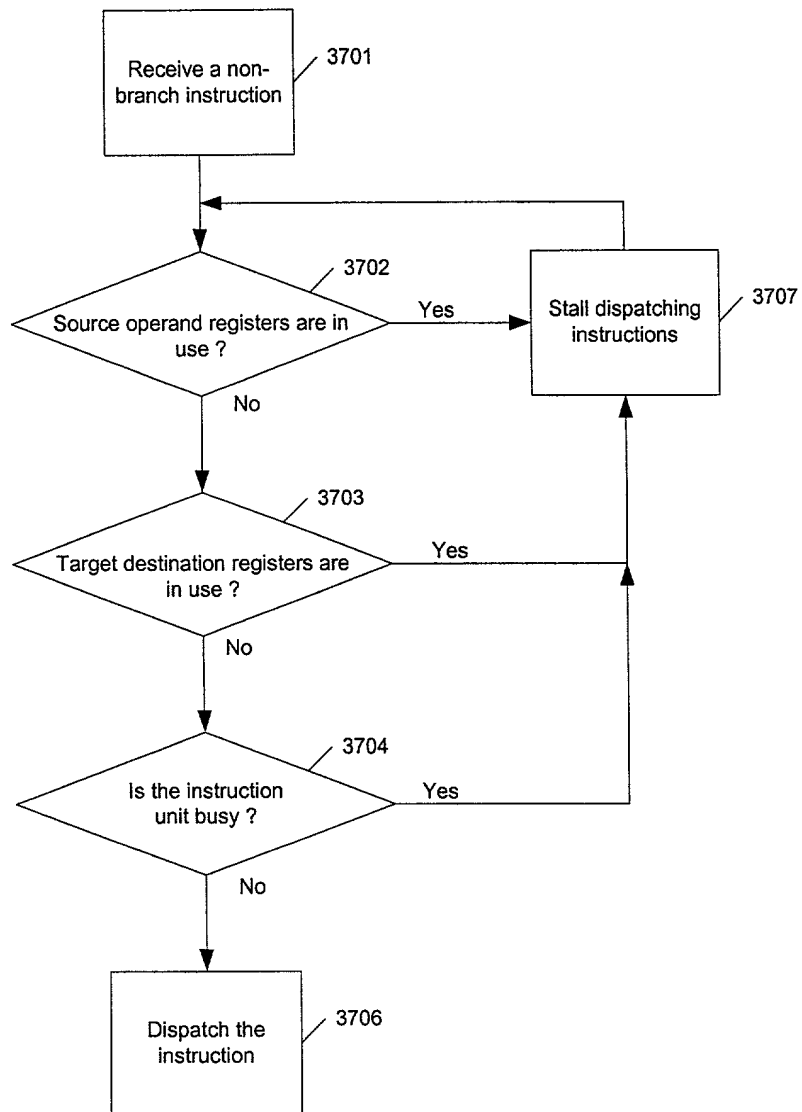


Figure 27

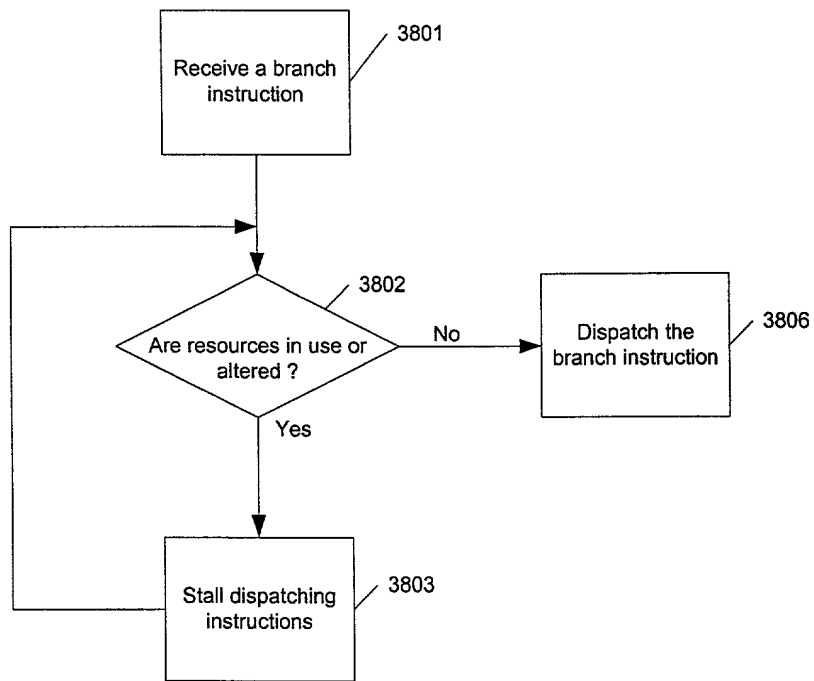
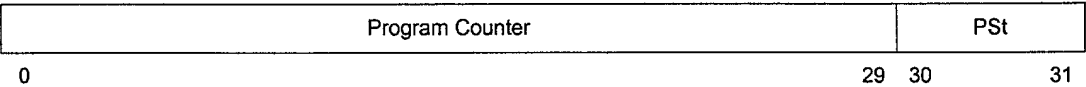


Figure 28



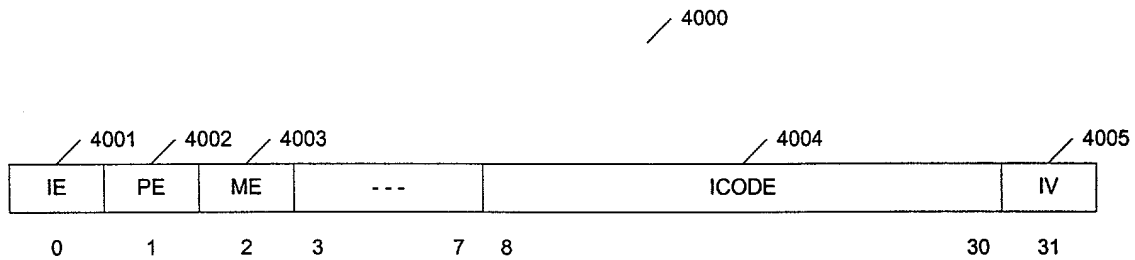
3900



3901

Pst	Name	Description
00	Idle	CQ counters are equal and no current command executing. Program counter is invalid.
01	Run	Command was executing. Program counter points to next instruction that would have been executed.
10	IWait	Command was executing, but instruction fetching has stopped due to a previous exception. Program counter points to the next instruction that would have been executed.
11	CWait	Command was not executing due to an exception in fetching the command. Program counter is invalid.

Figure 29



4006

Name	Descriptions
IE	Illegal Opcode Exception. Occurs whenever an illegal Opcode is fetched for execution. Cleared when read by the host.
PE	Program Counter Exception. Occurs whenever the host does a read program counter with exception. Cleared with read by host.
ME	Memory Access Exception. Occurs whenever a memory operation results in a memory access exception. Cleared when read by the host.
ICODE	Interrupt Code. Can be read and written by a compute engine or the host.
IV	Interrupt Valid. Set and read by the compute engine to indicate and interrupt to the host. Read and cleared by the host.

**Figure 30**

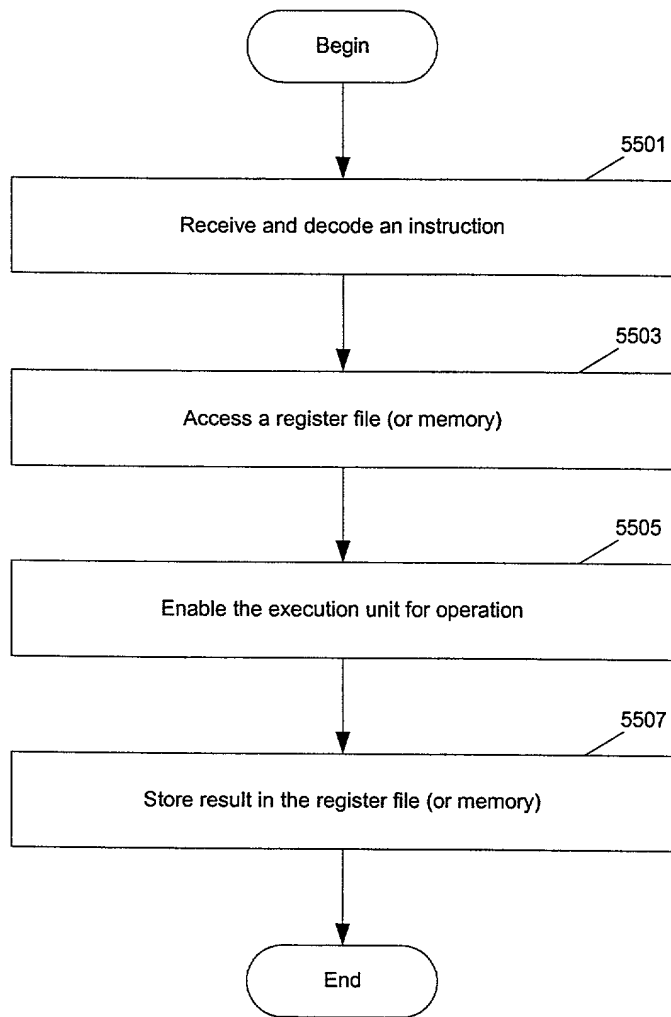


Fig. 31

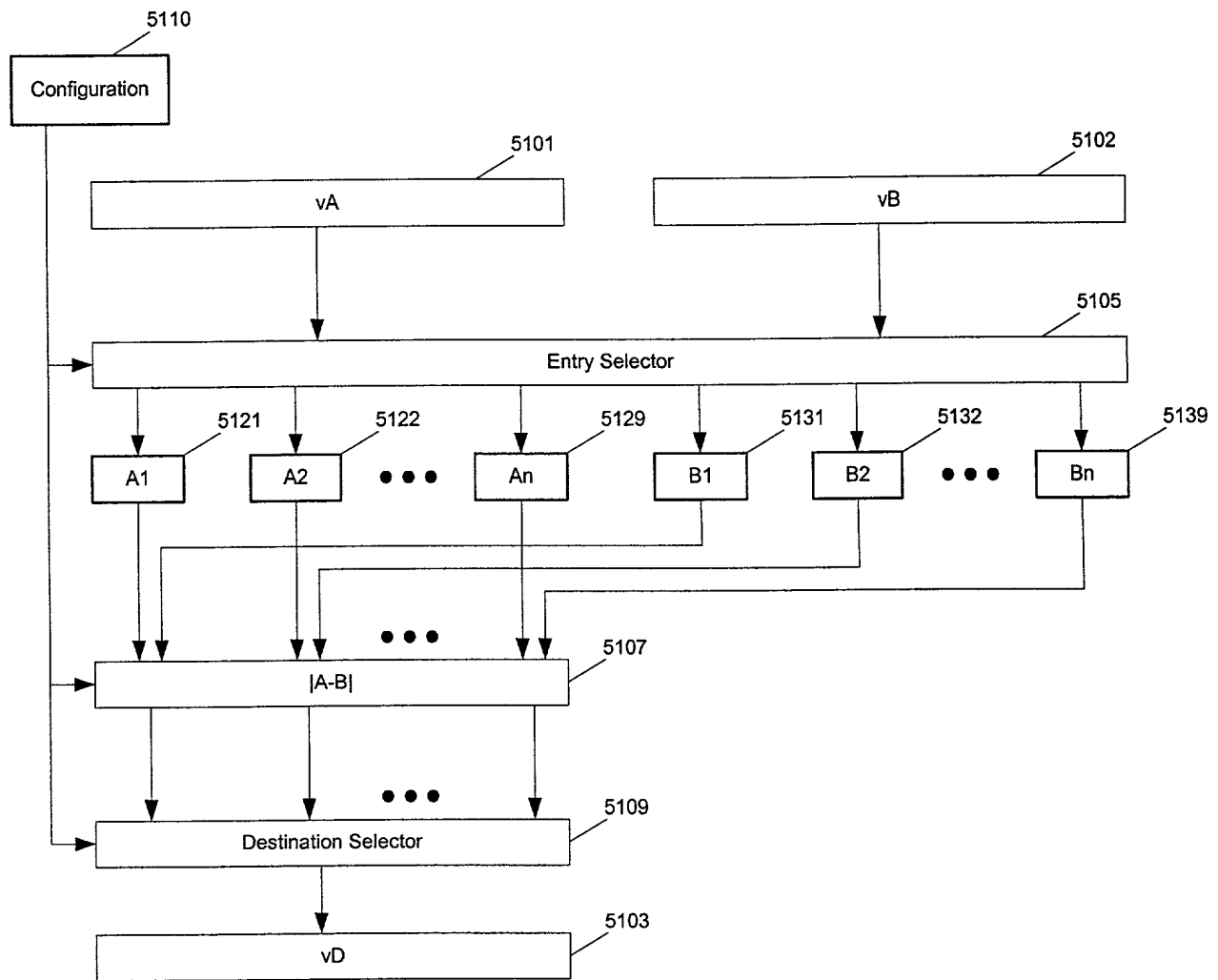


Fig. 32

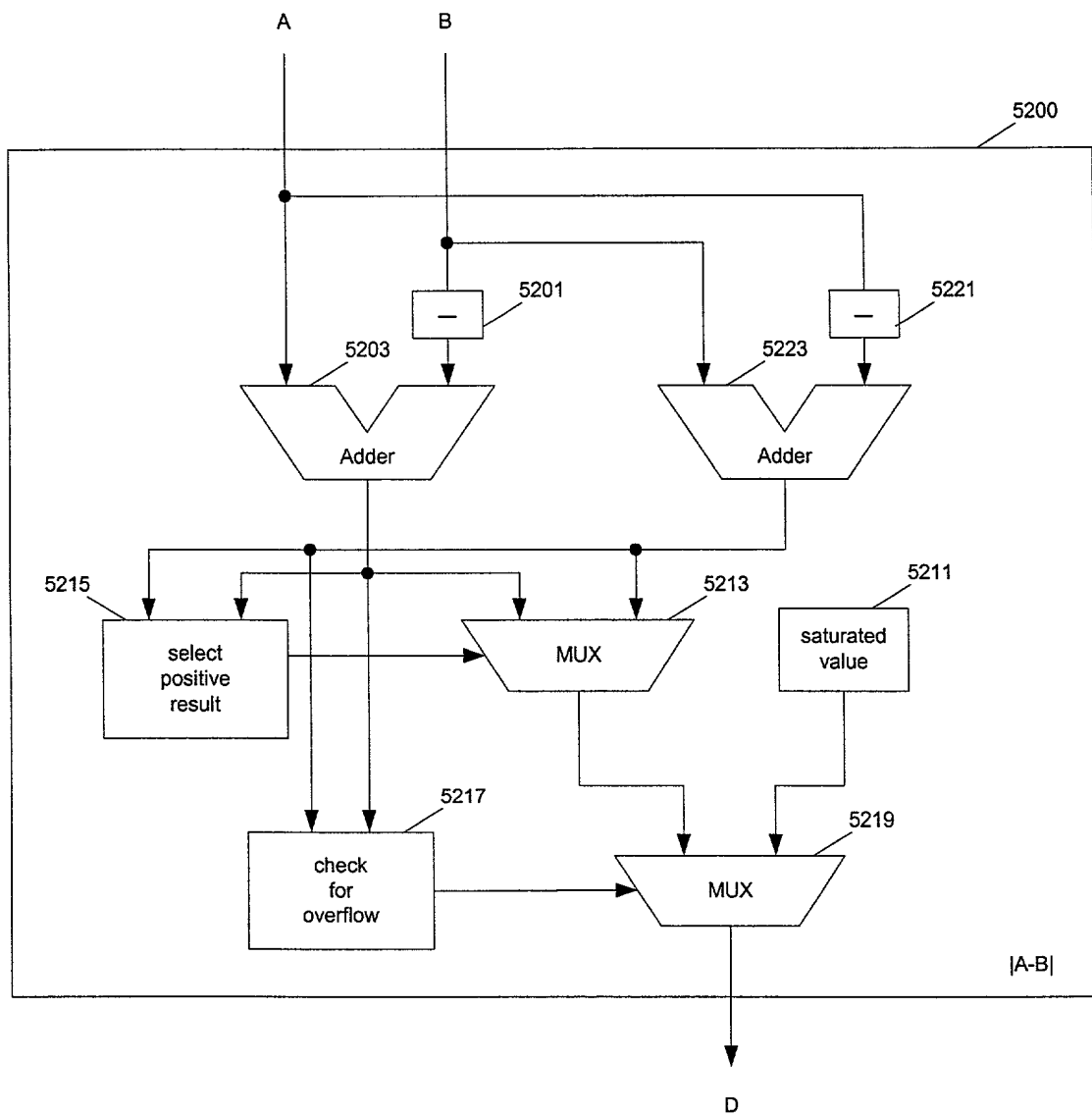


Fig. 33

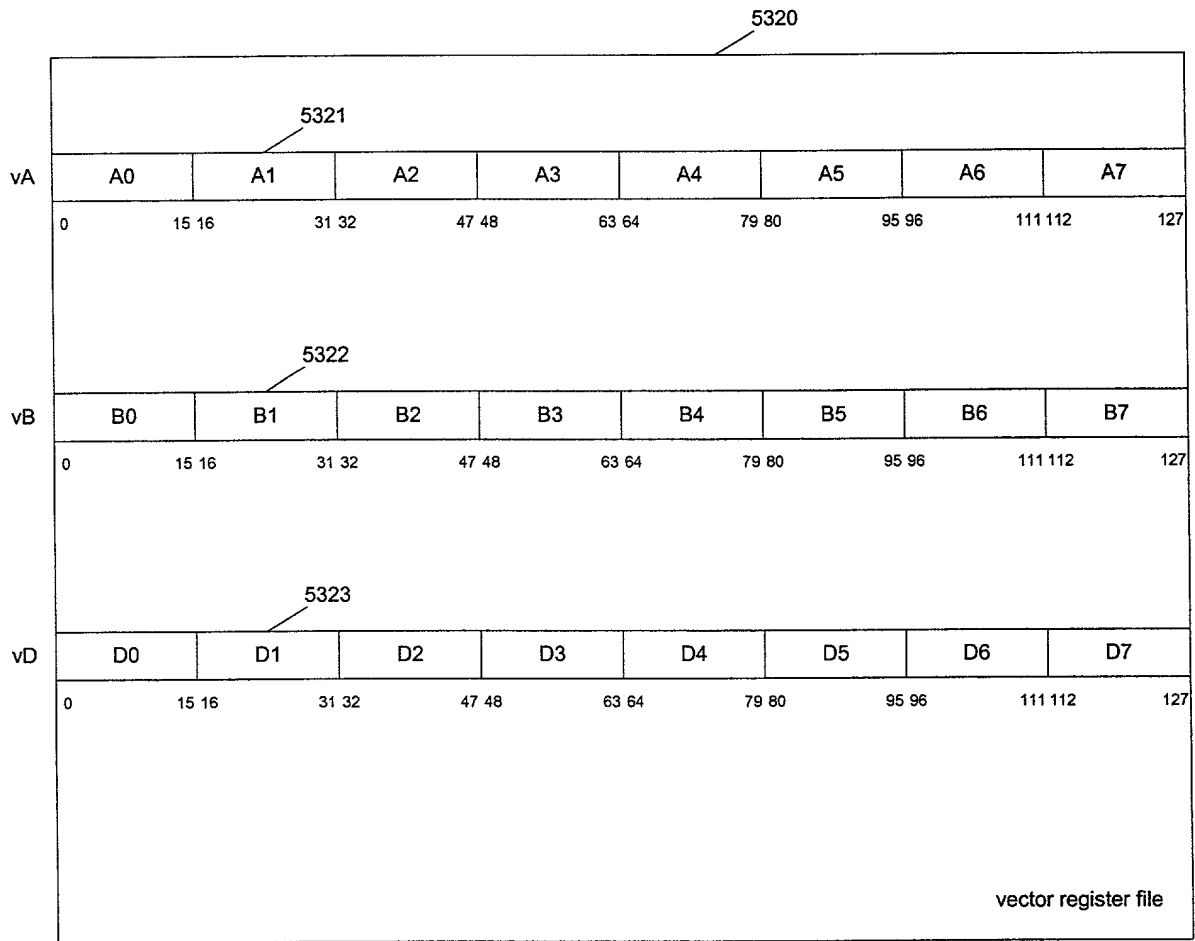
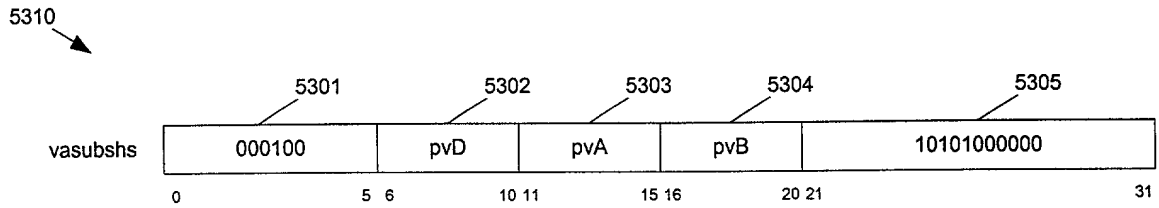


Fig. 34

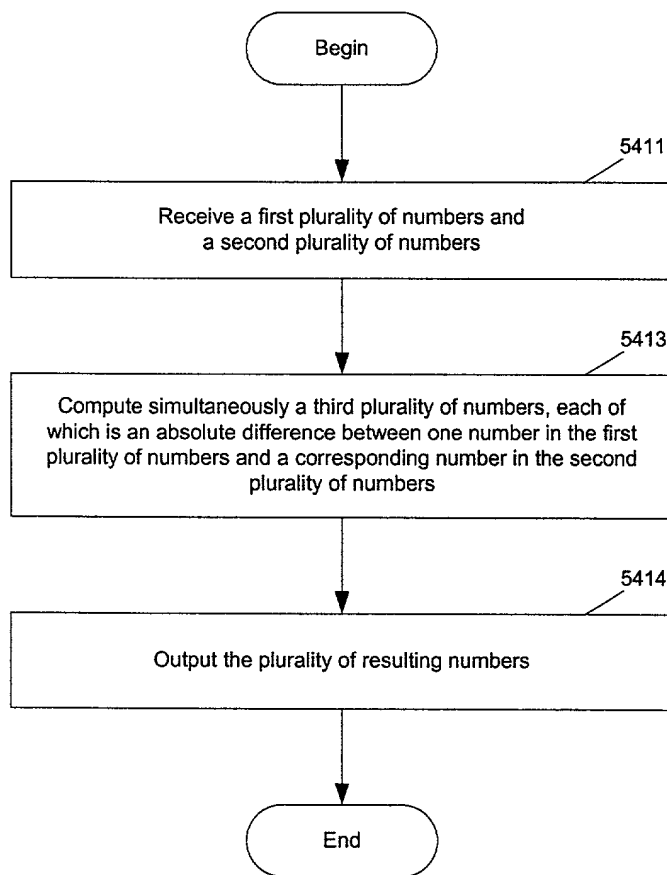


Fig. 35

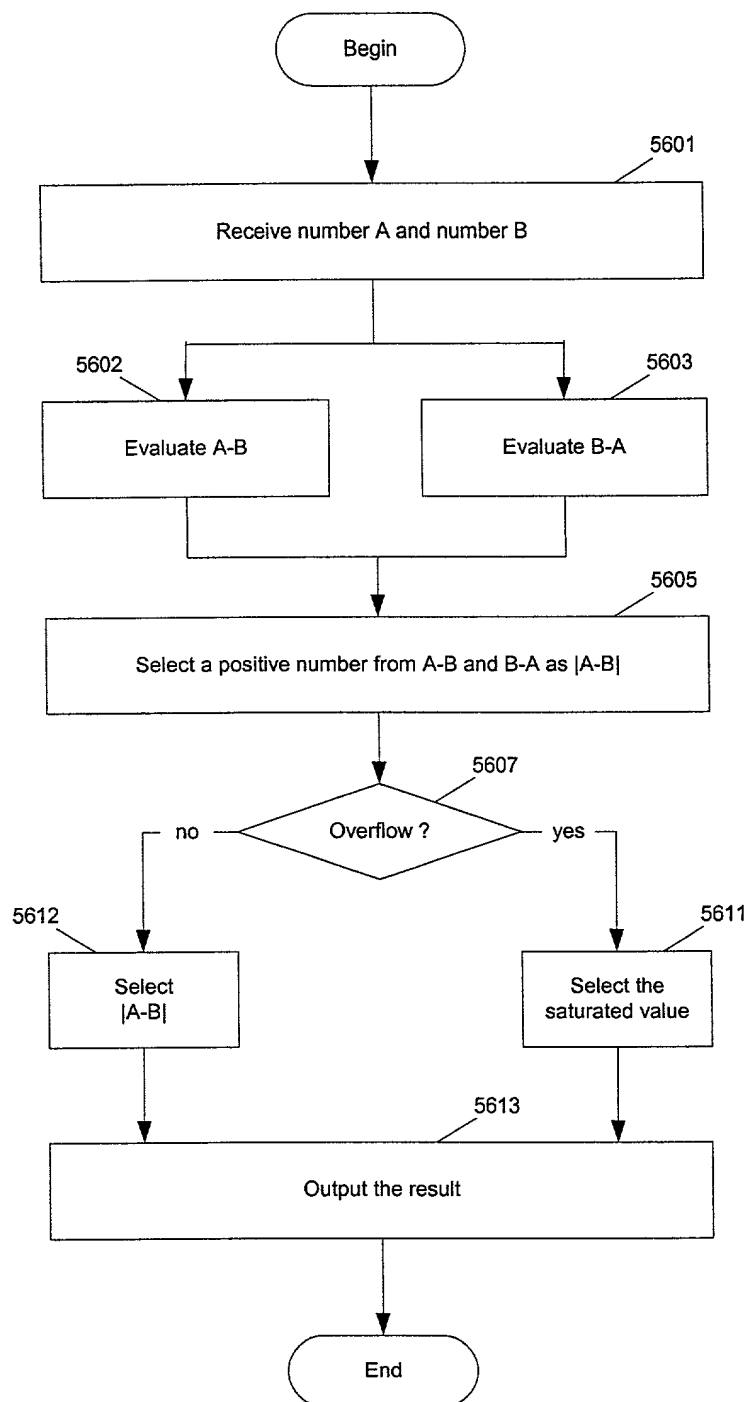


Fig. 36



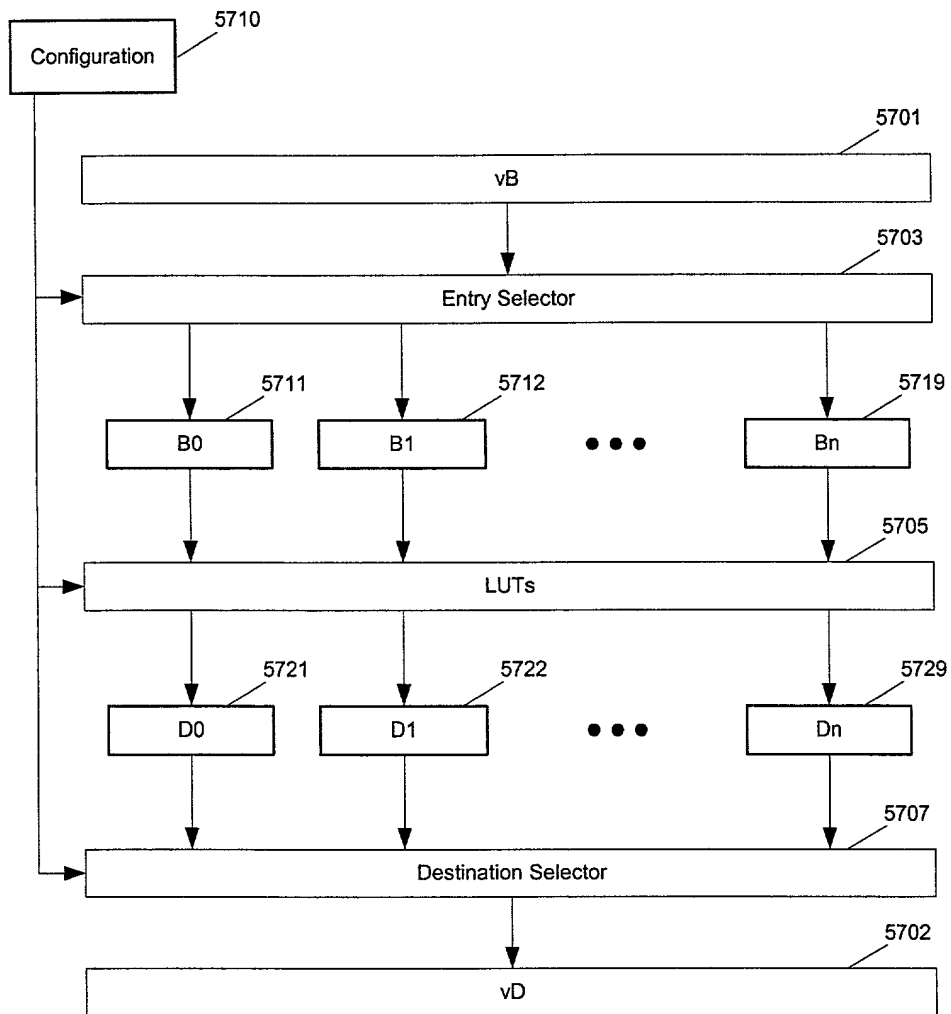


Fig. 37

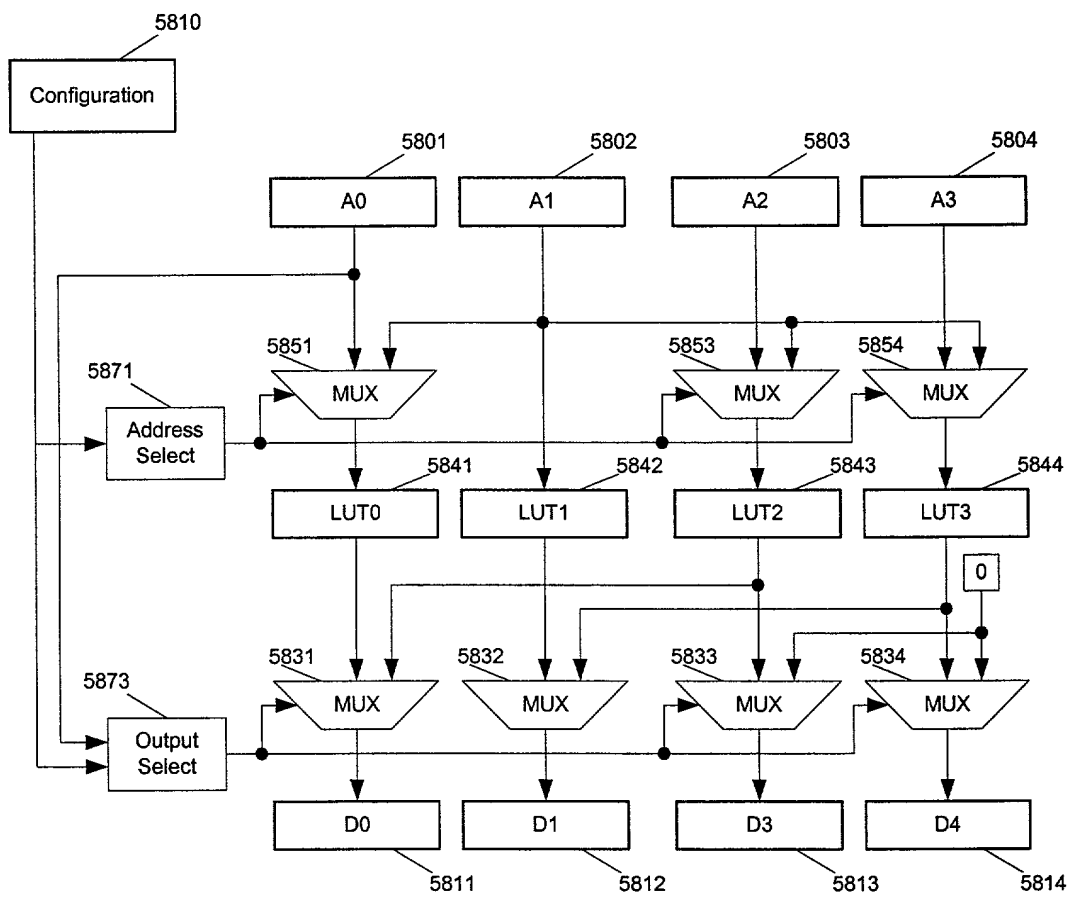


Fig. 38

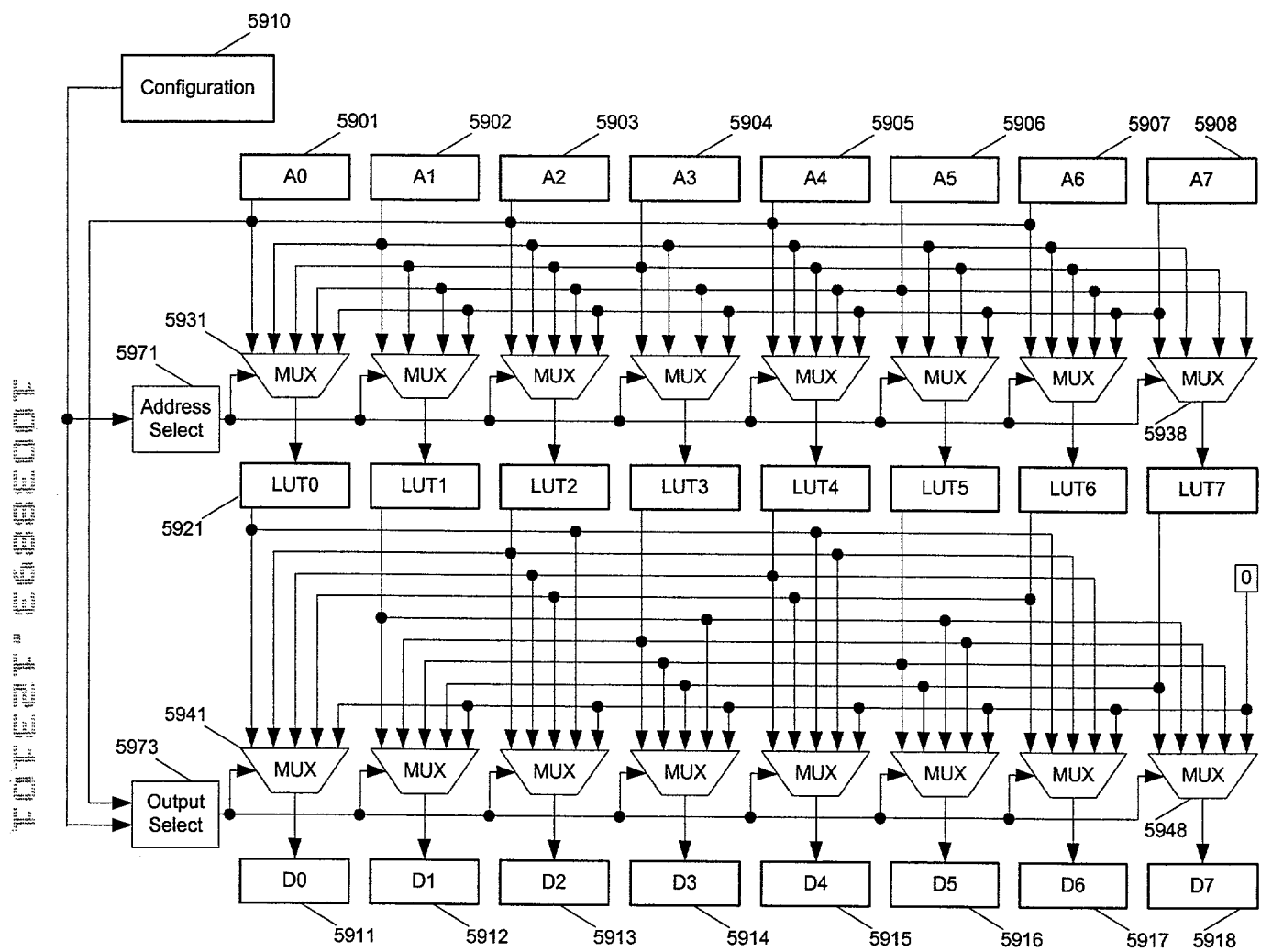


Fig. 39

6010

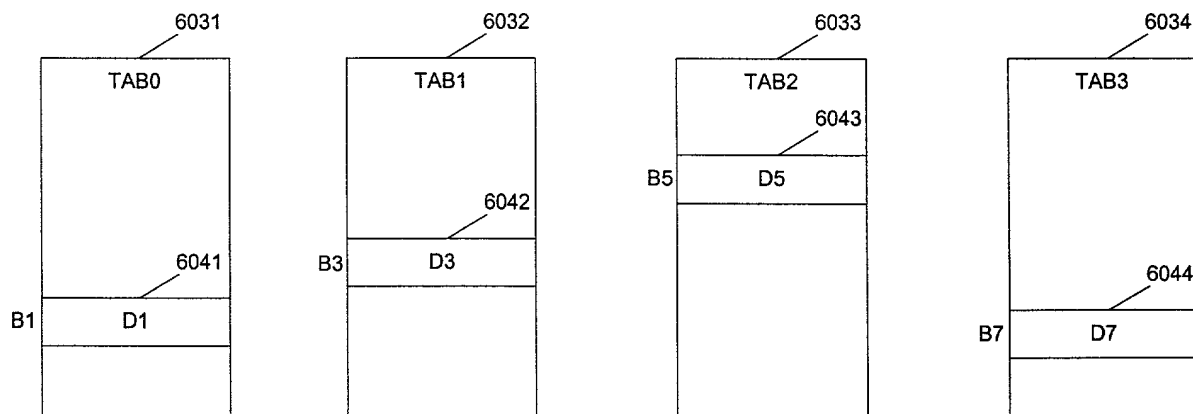
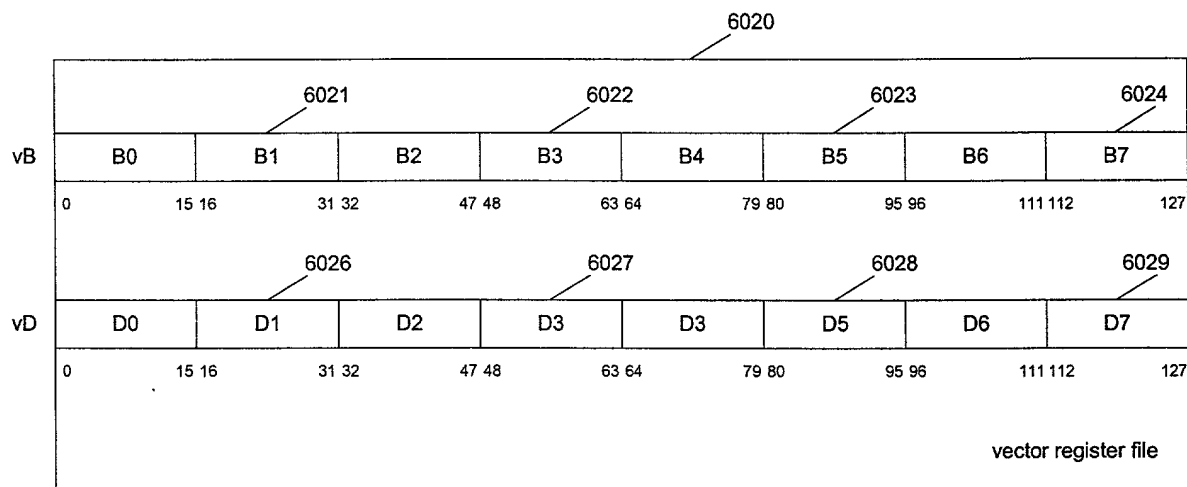
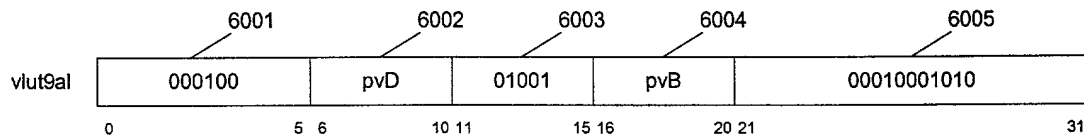


Fig. 40

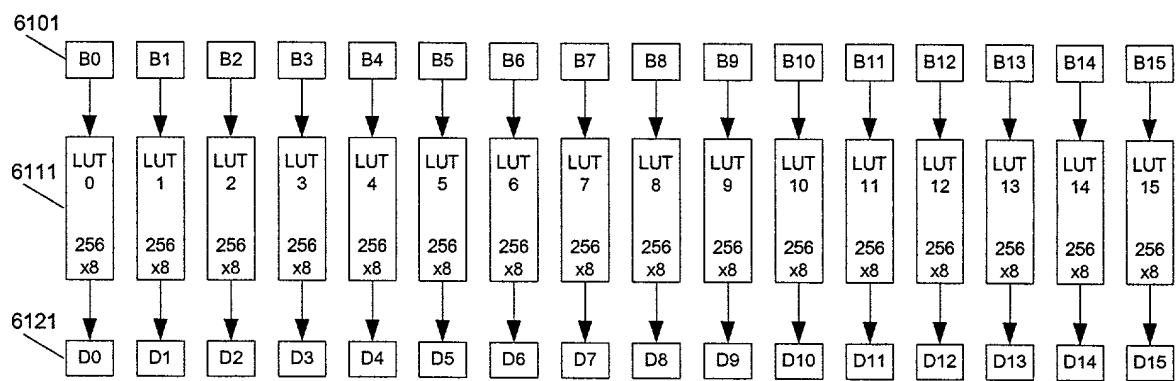


Fig. 41

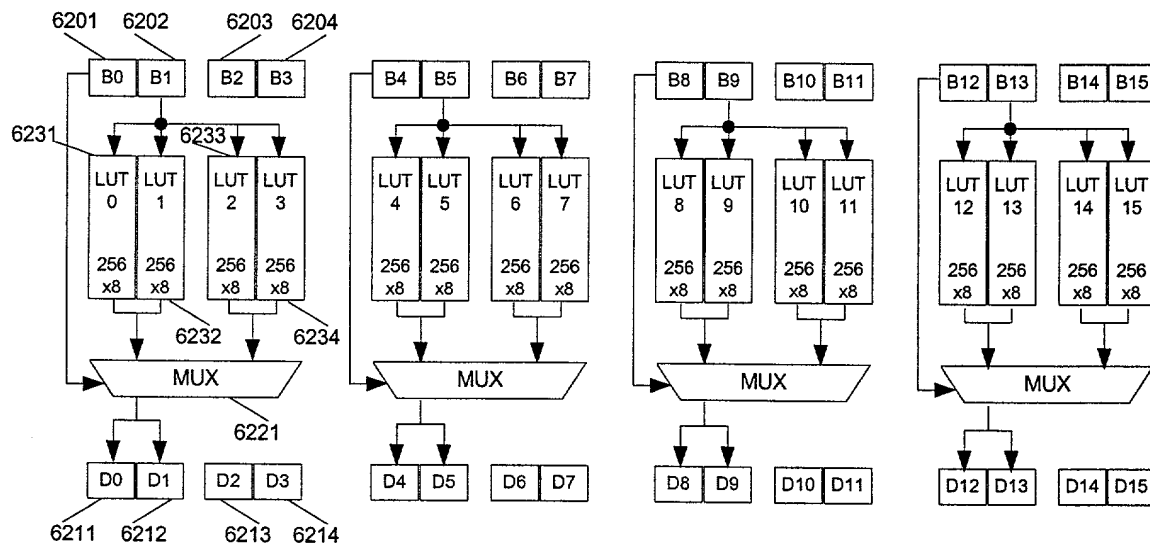


Fig. 42

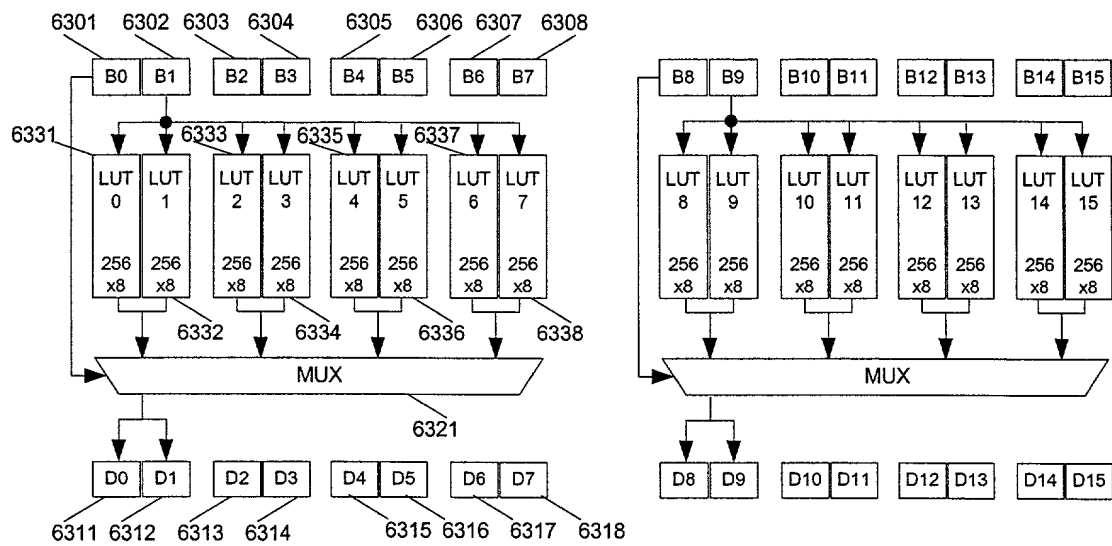


Fig. 43

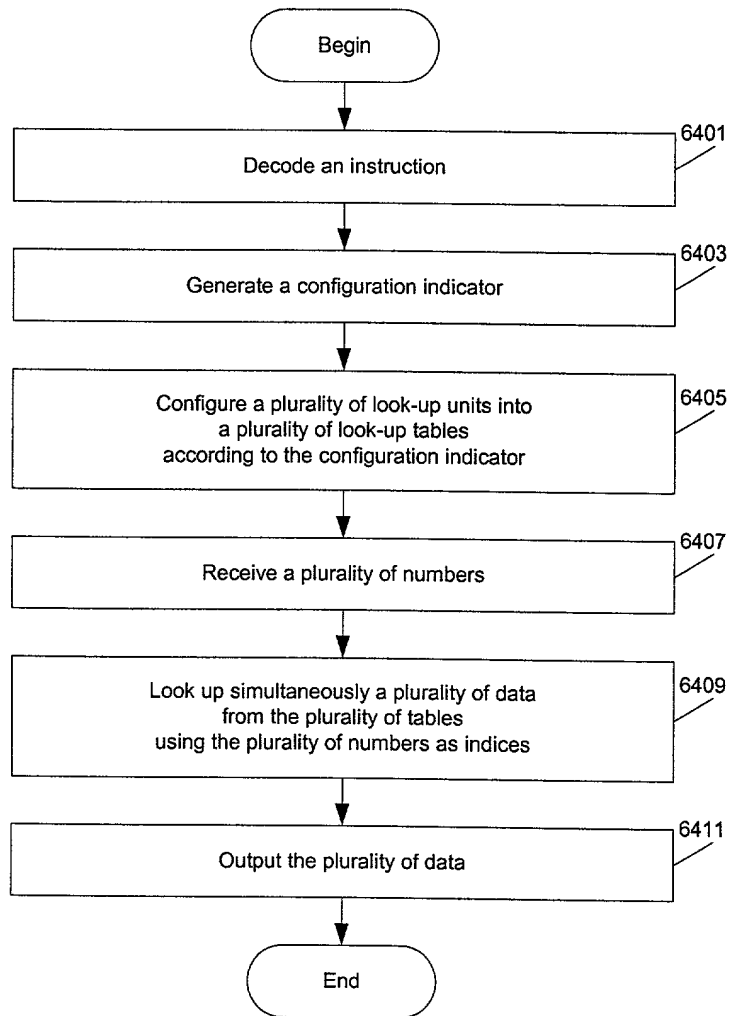


Fig. 44



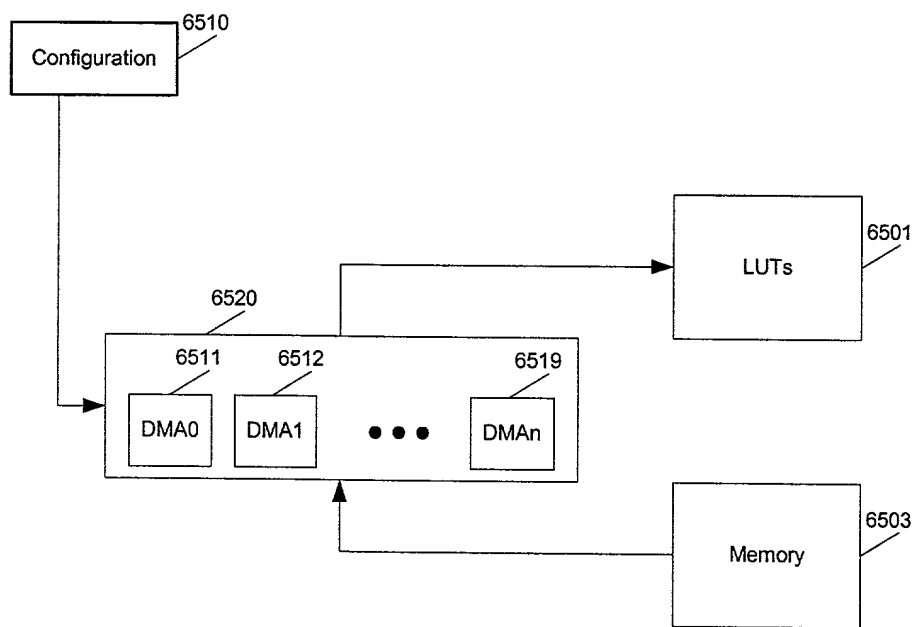


Fig. 45

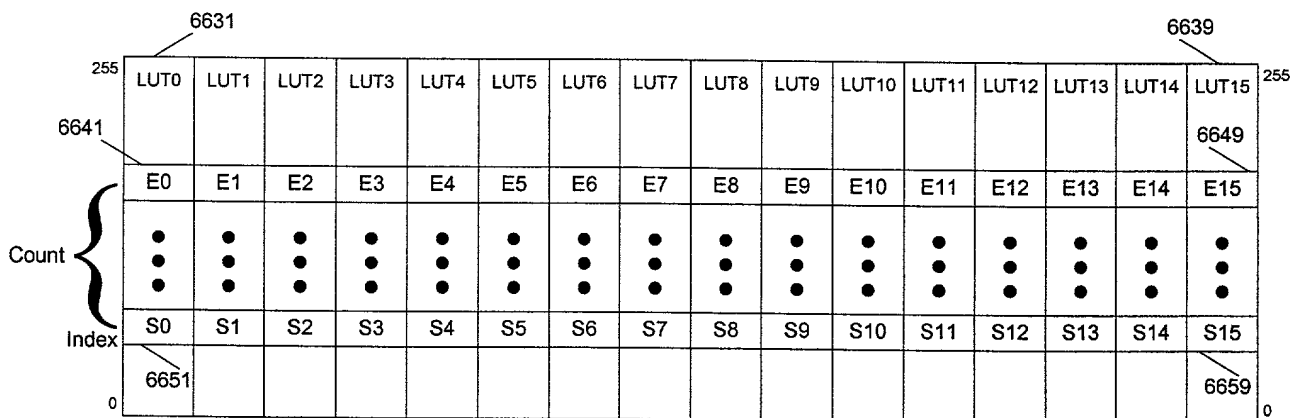
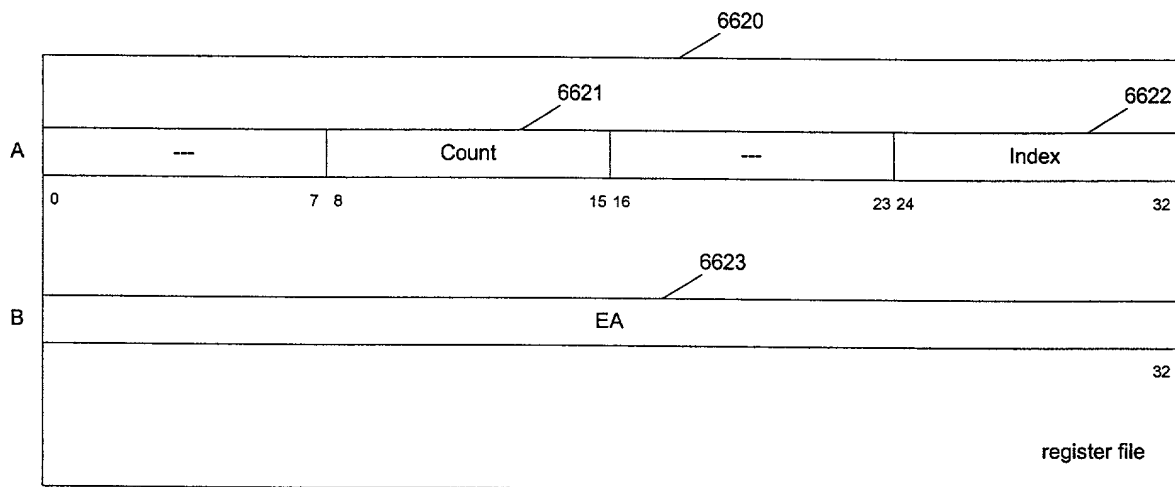
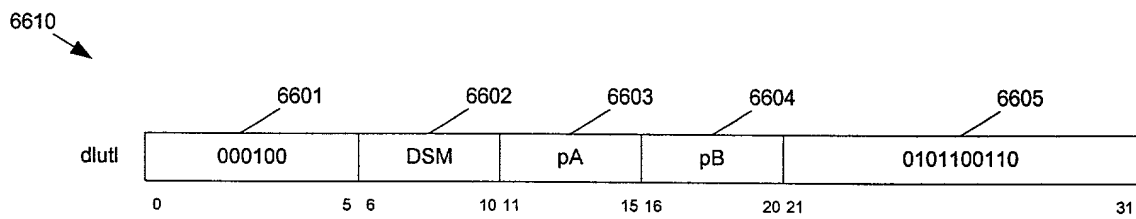


Fig. 46

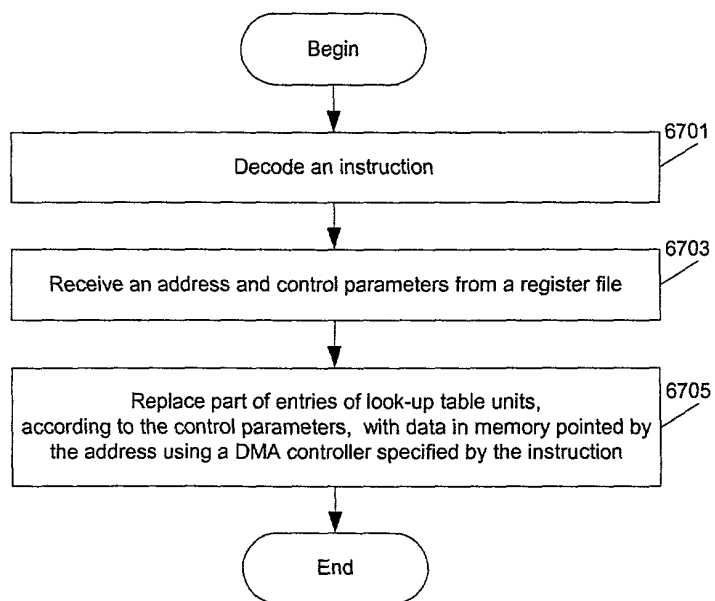


Fig. 47

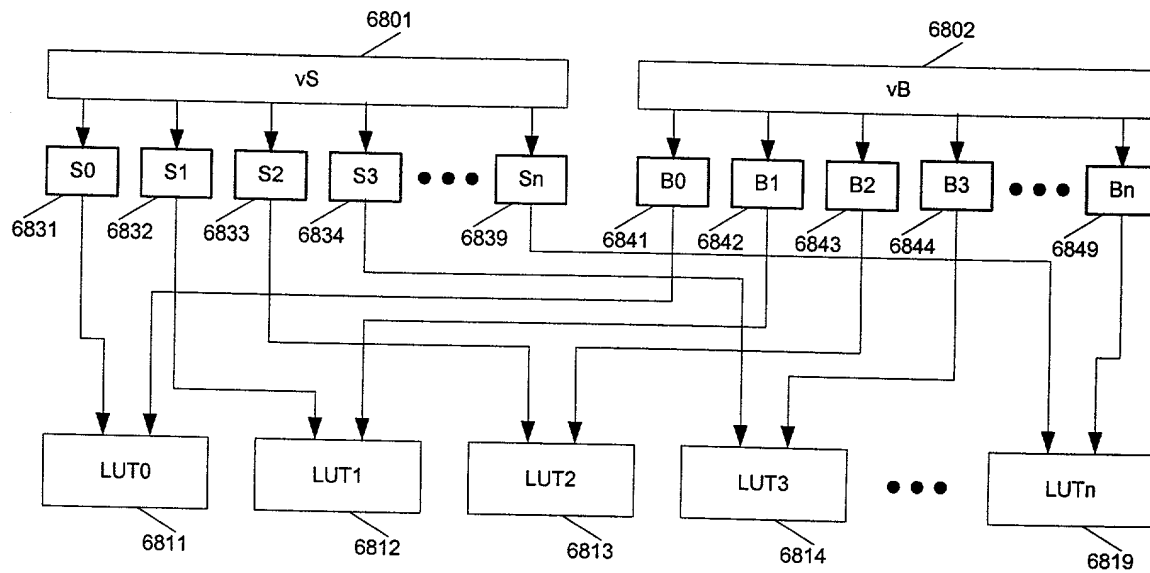


Fig. 48

6910

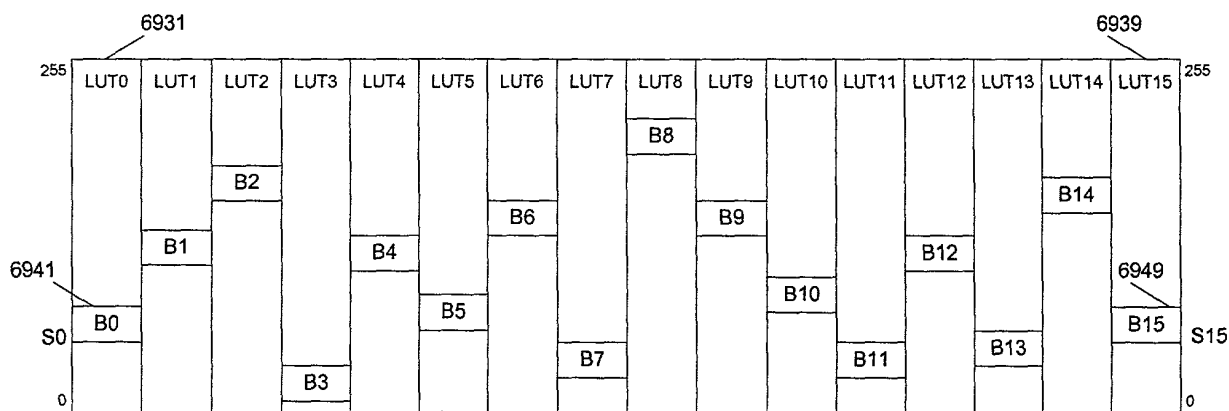
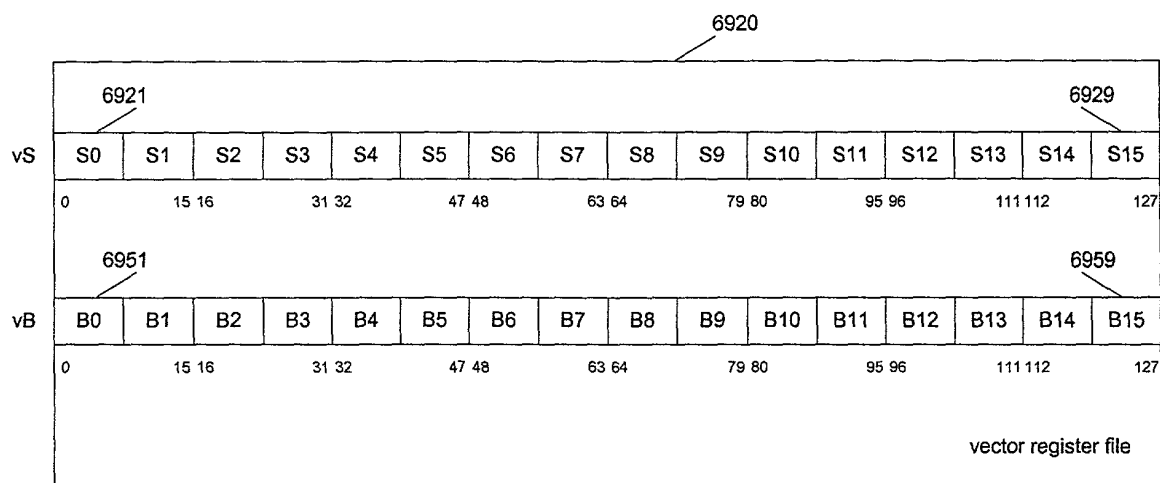
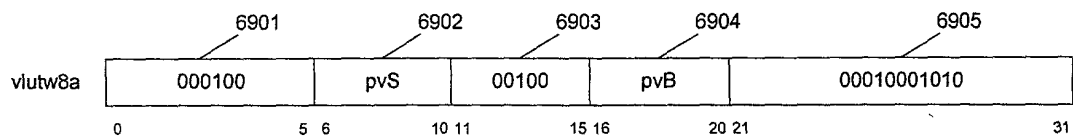


Fig. 49

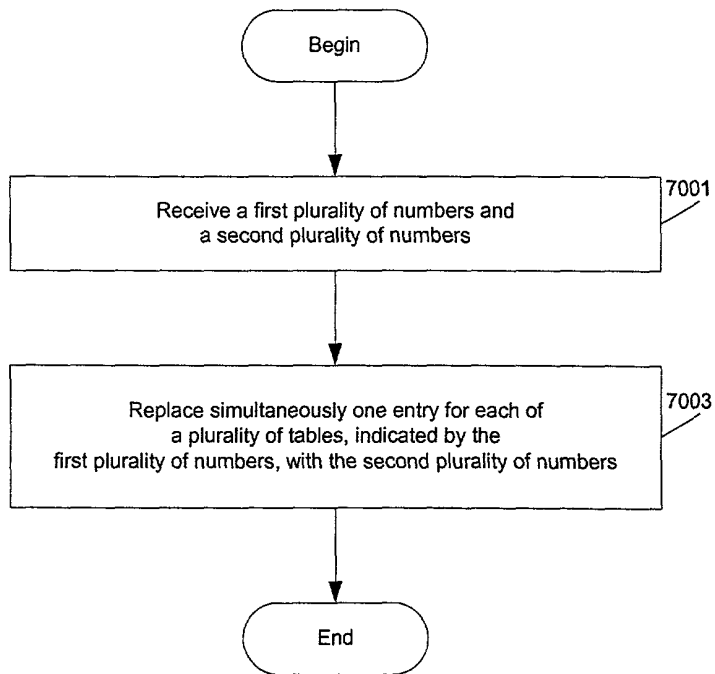


Fig. 50

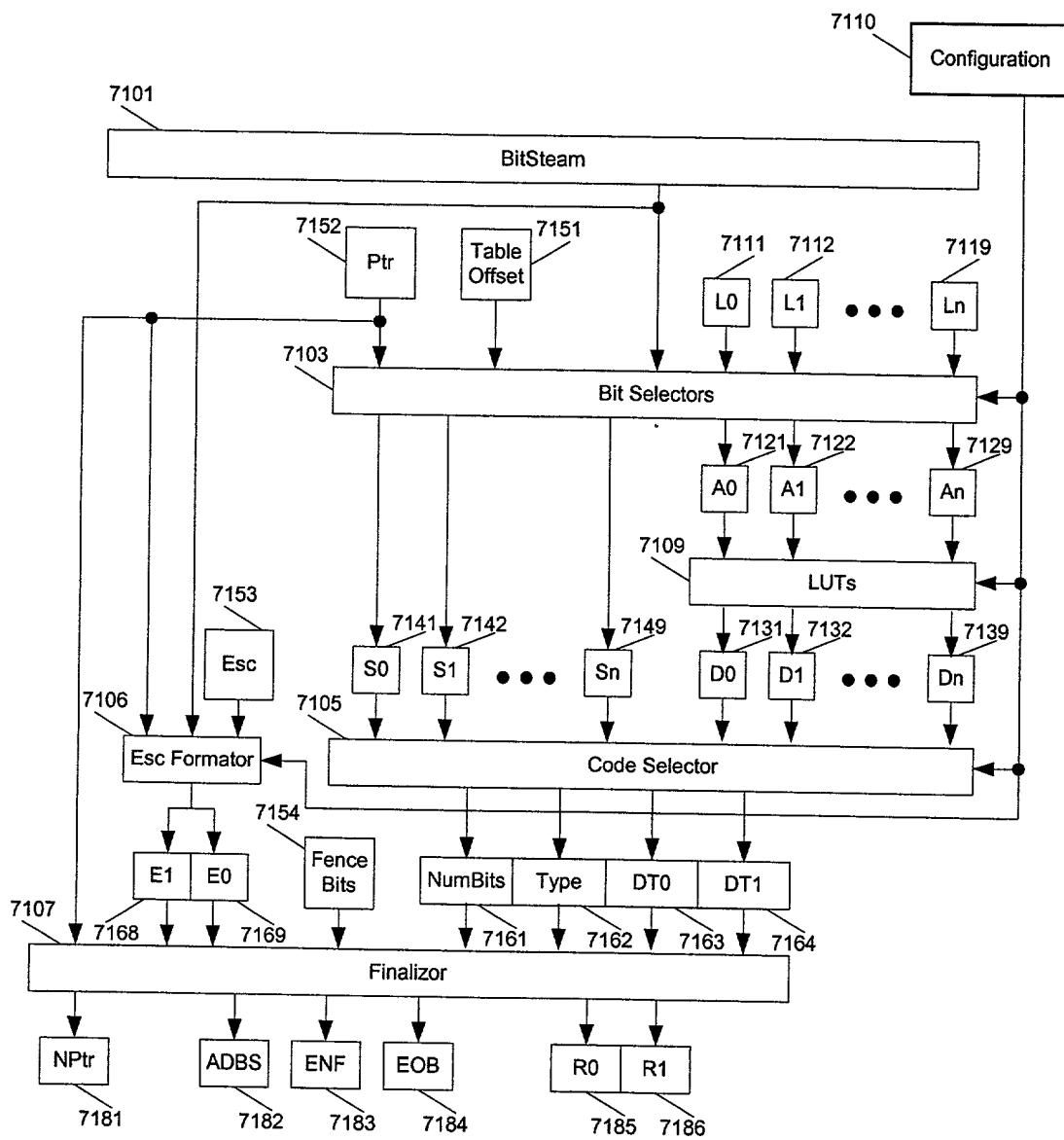
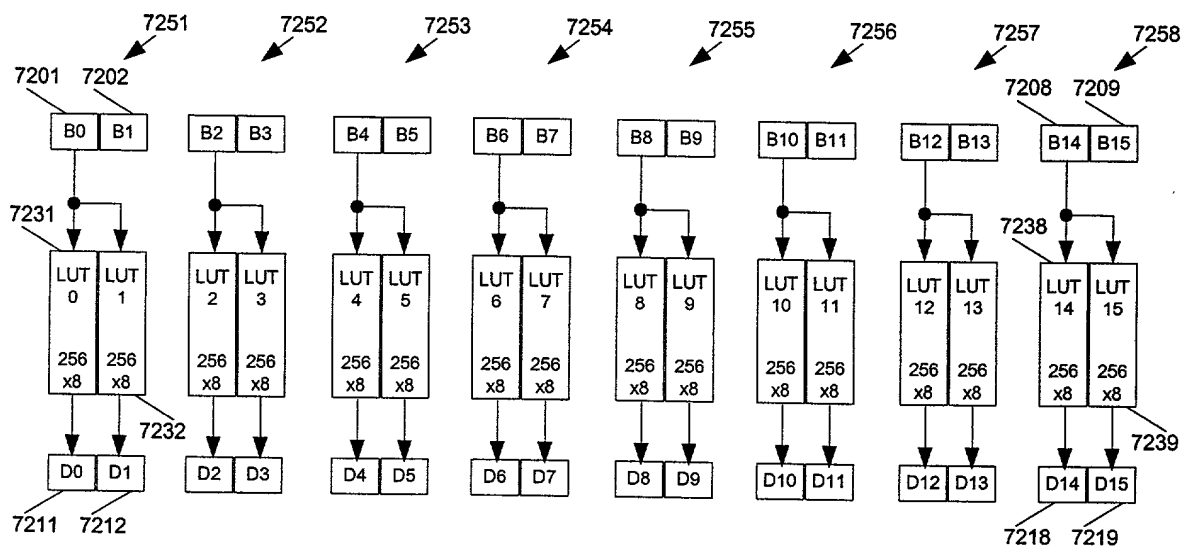


Fig. 51

Fig. 52





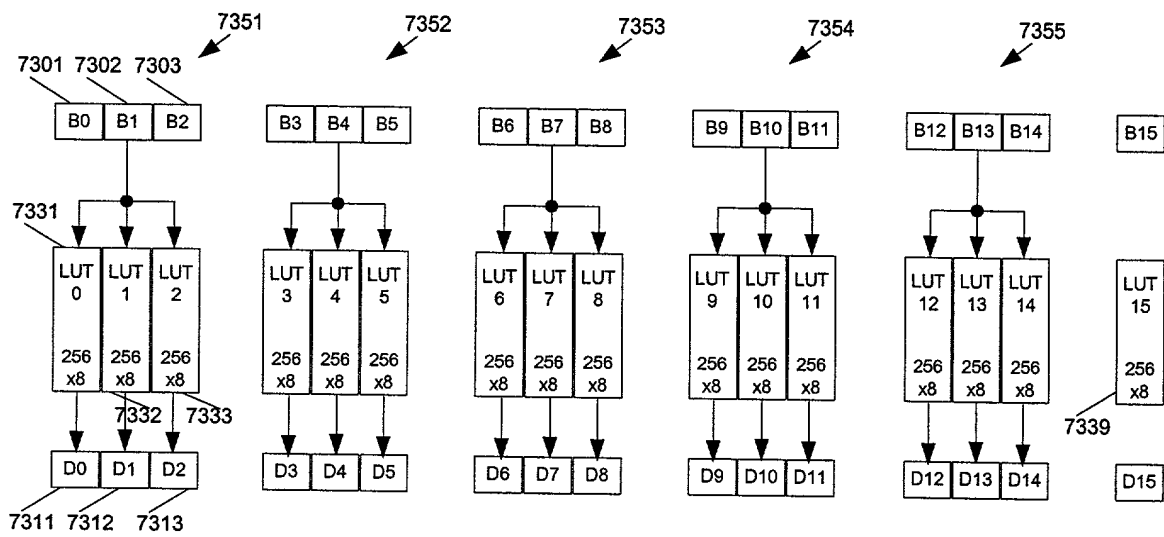


Fig. 53

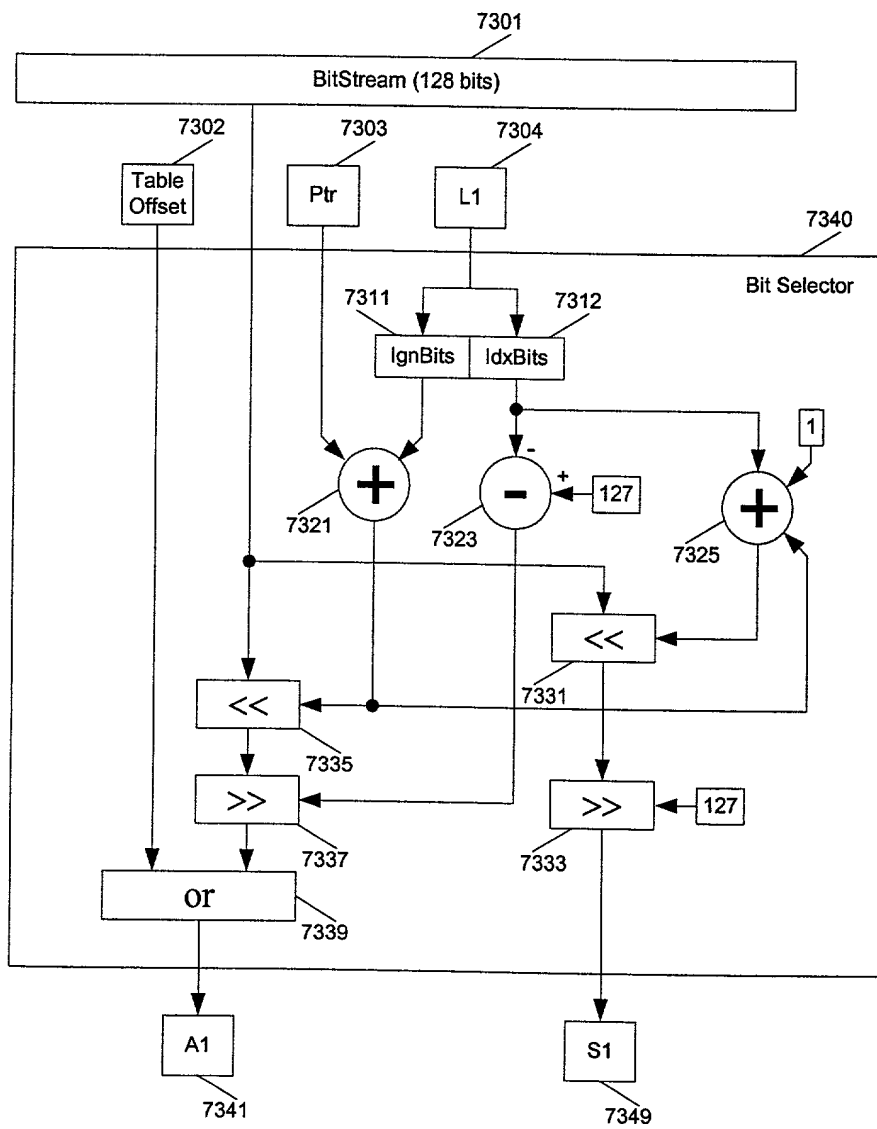


Fig. 54

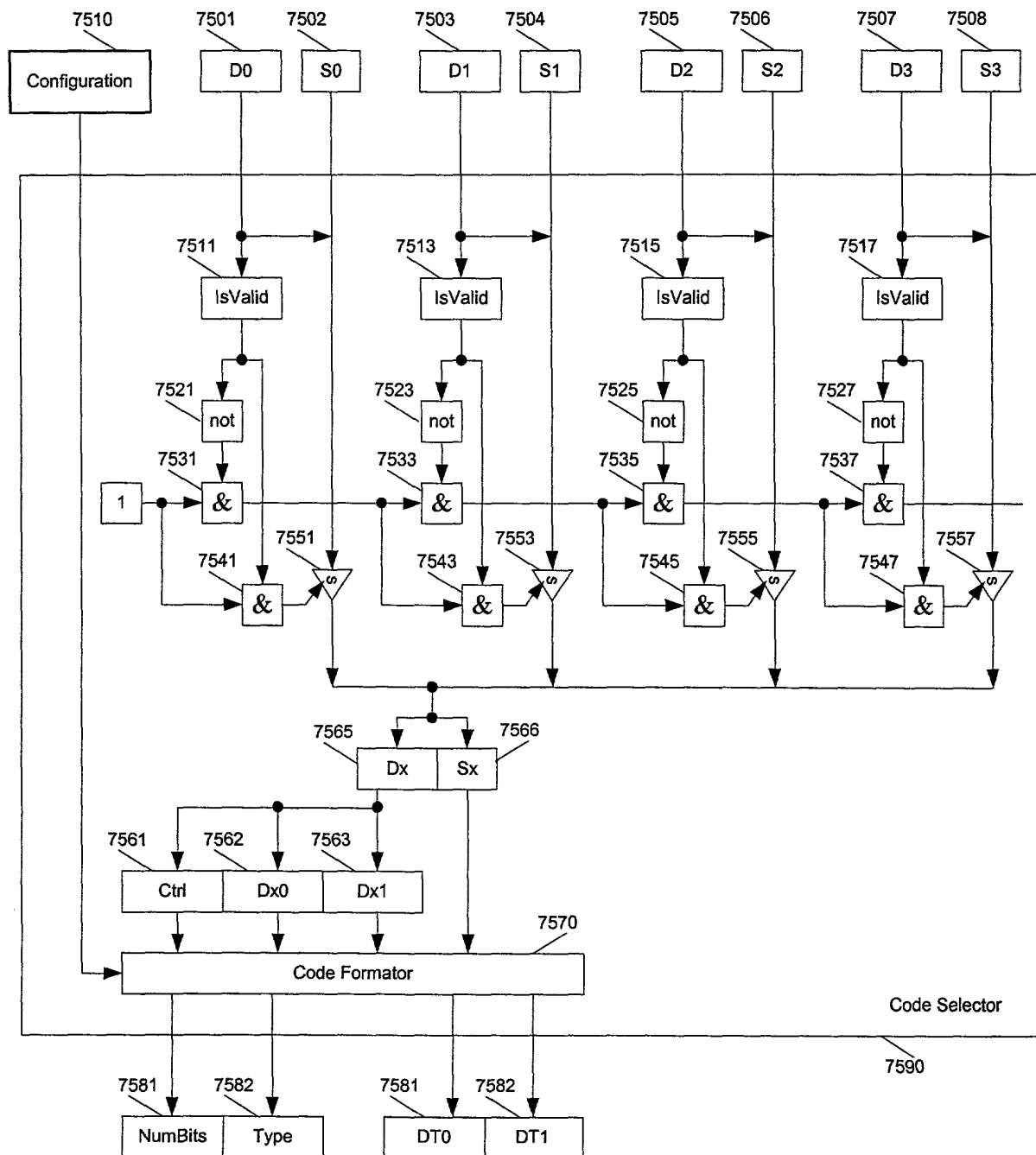


Fig. 55

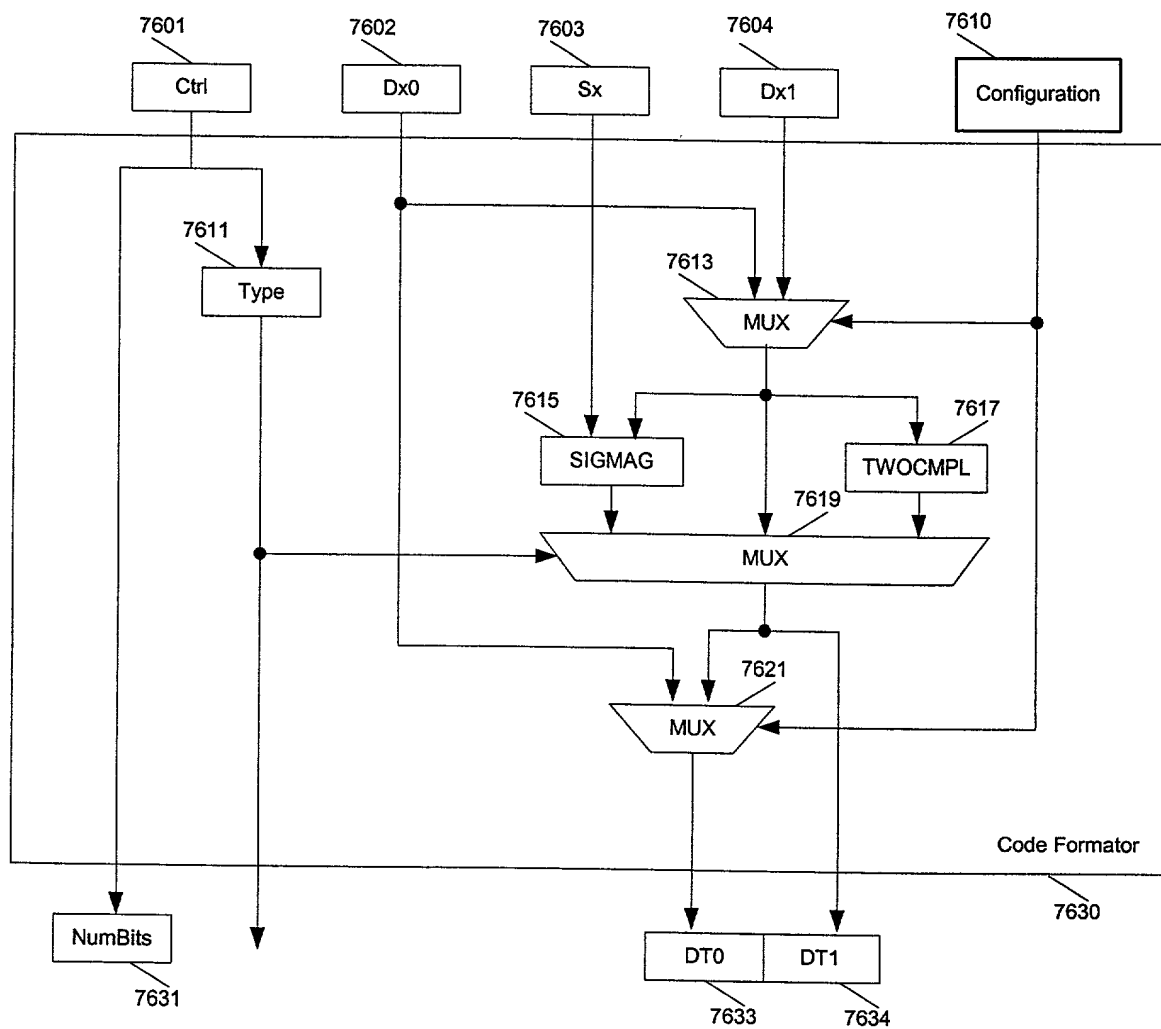


Fig. 56

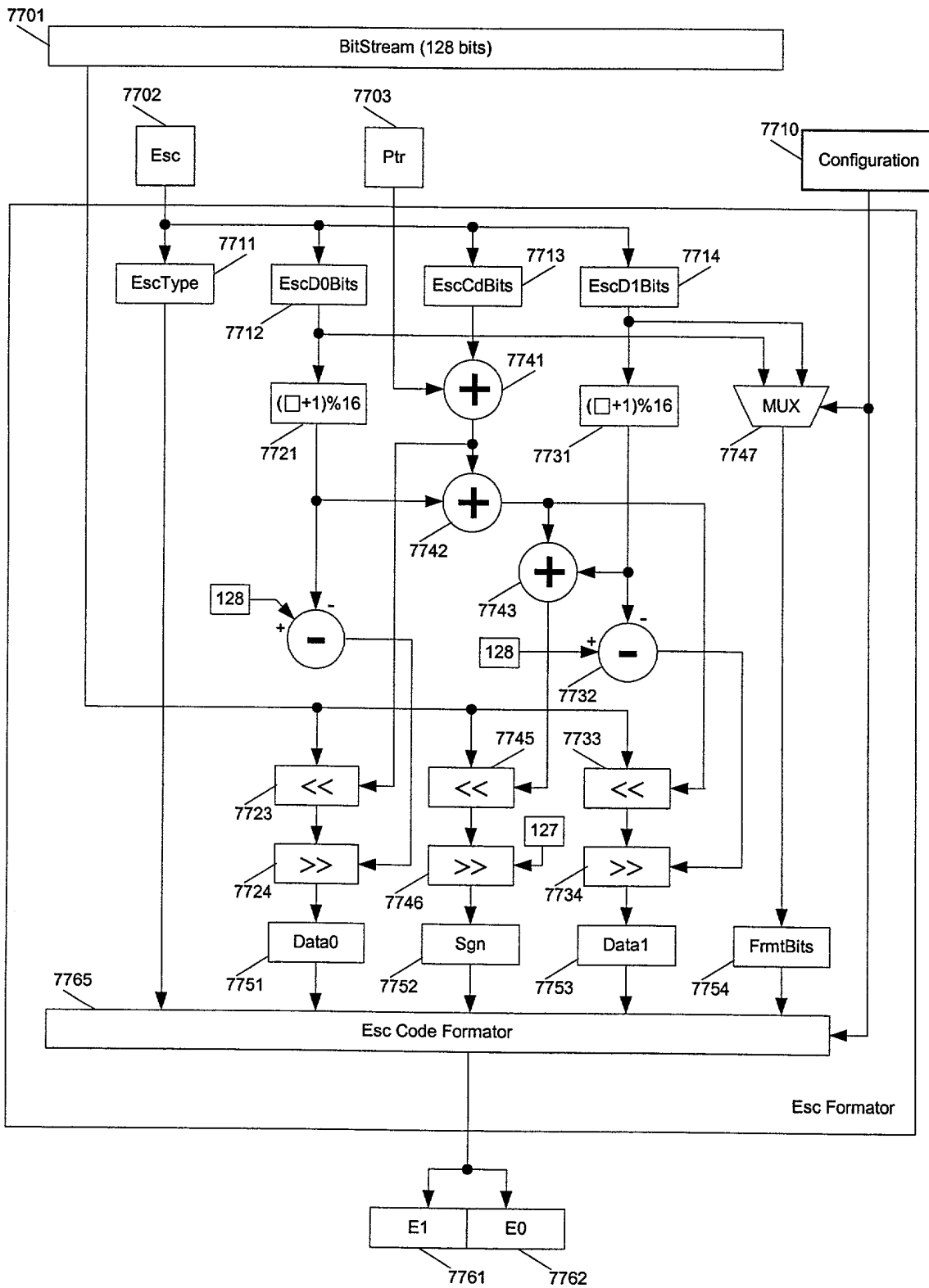


Fig. 57

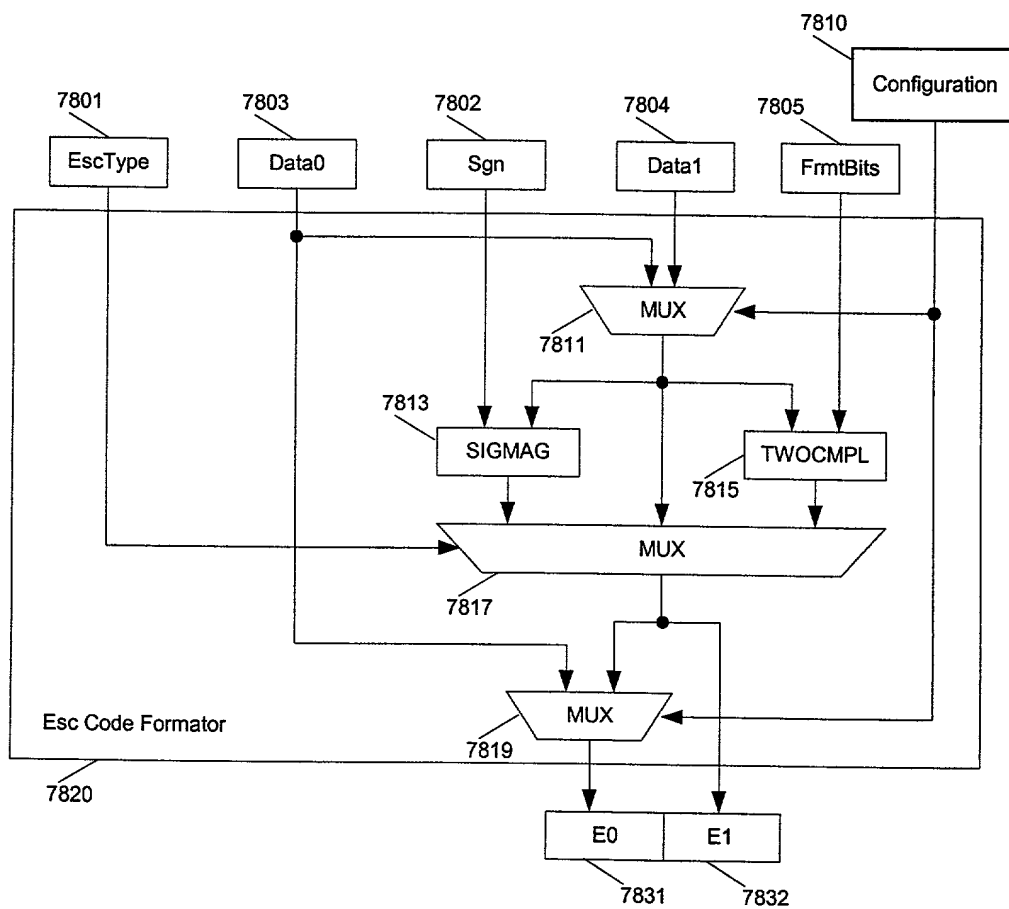


Fig. 58

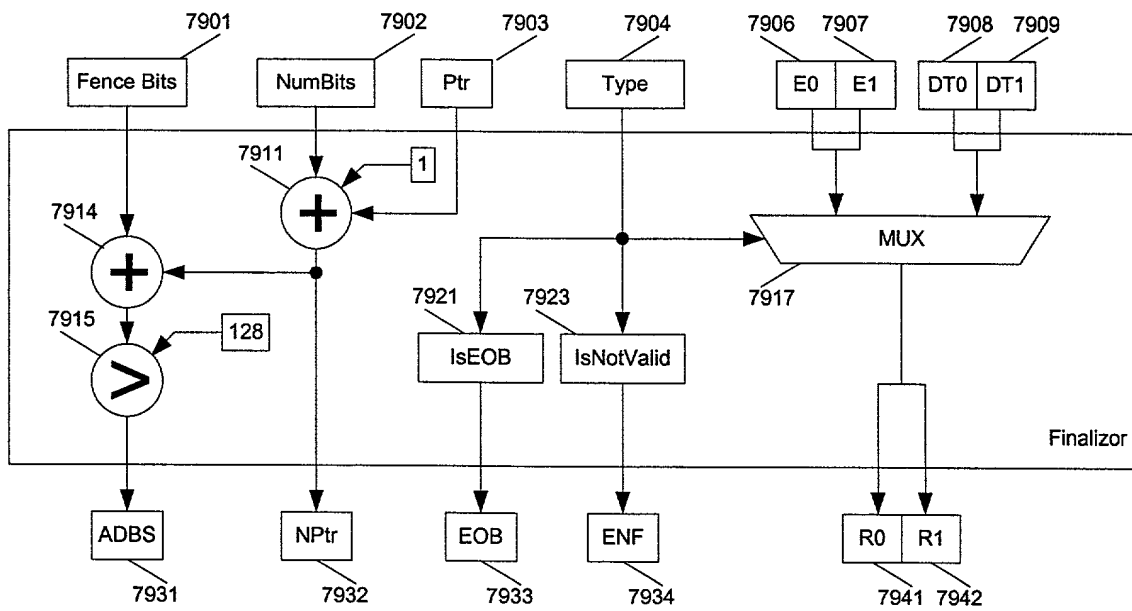


Fig. 59

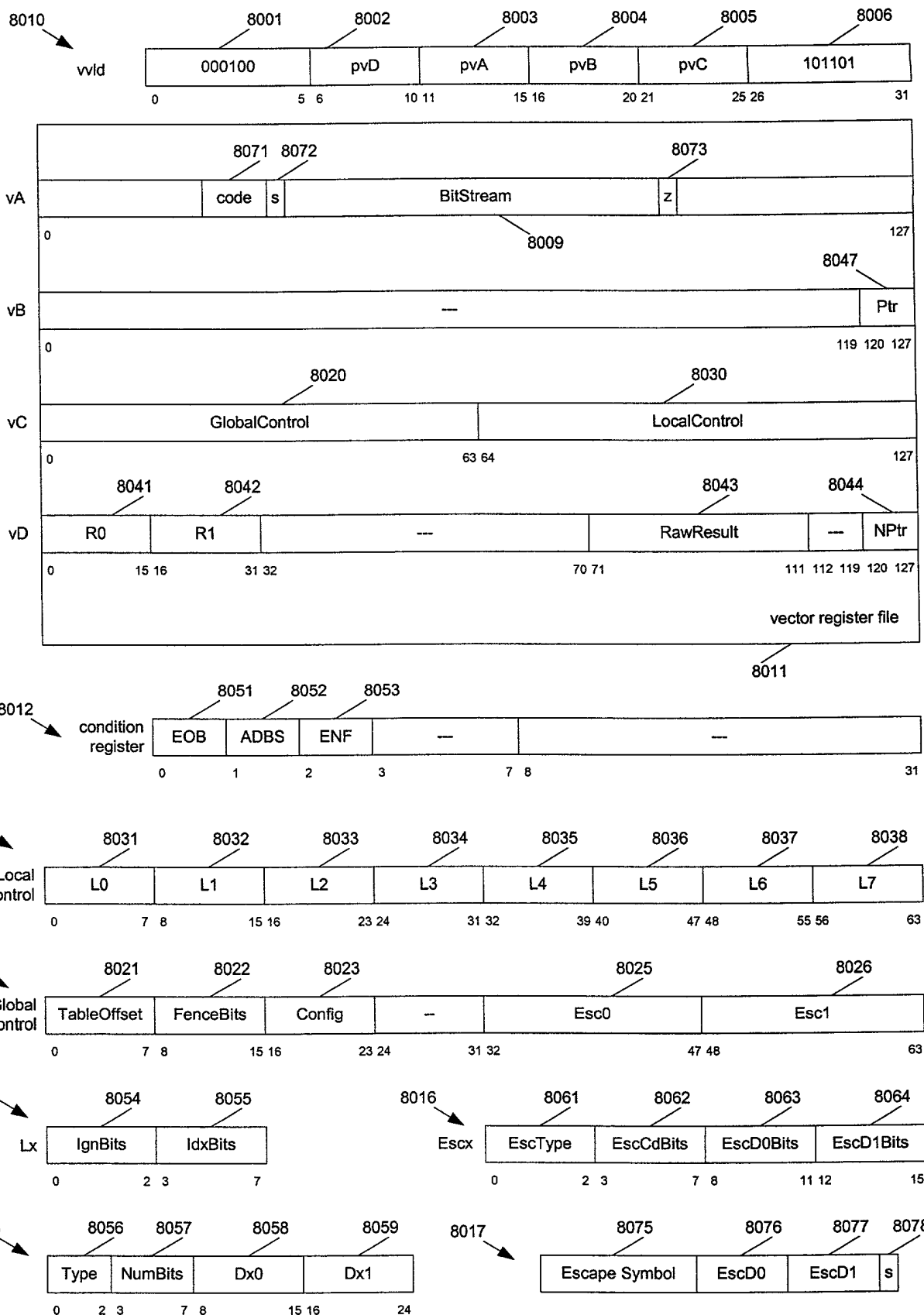


Fig. 60



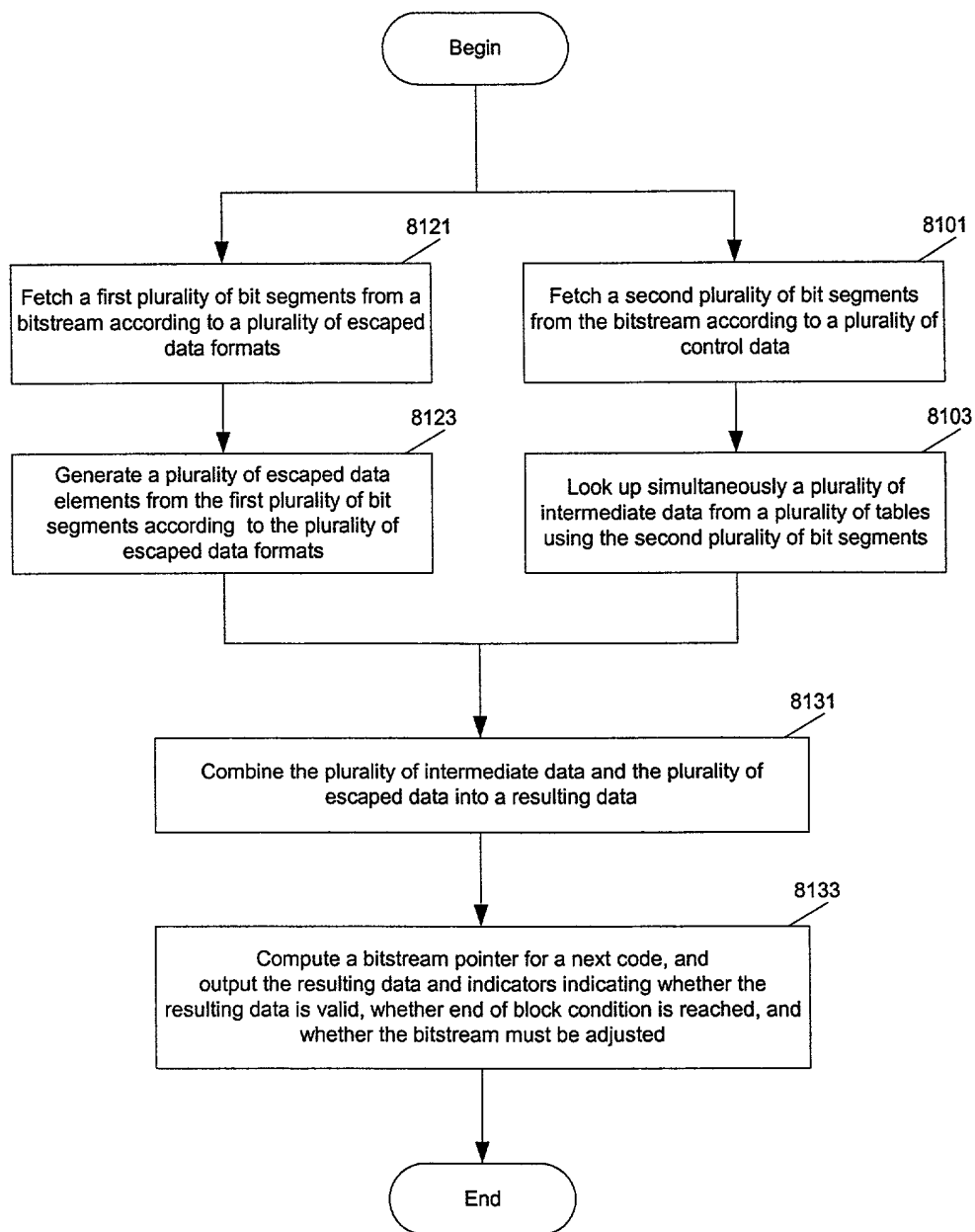


Fig. 61

Index	T1				T2				T3				T4			
	type	bits	run	level	type	bits	run	level	type	bits	run	level	type	bits	run	level
00	4	2	0	1	4	6	3	1	4	9	11	1	4	10	5	3
01	4	2	0	1	4	6	3	1	4	9	11	-1	4	10	5	3
02	4	2	0	1	4	6	3	-1	4	9	12	1	4	10	5	-3
03	4	2	0	1	4	6	3	-1	4	9	12	-1	4	10	5	-3
04	4	2	0	1	4	6	4	1	4	9	13	1	4	10	3	4
05	4	2	0	1	4	6	4	1	4	9	13	-1	4	10	3	4
06	4	2	0	1	4	6	4	-1	4	9	14	1	4	10	3	-4
07	4	2	0	1	4	6	4	-1	4	9	14	-1	4	10	3	-4
08	4	2	0	-1	4	6	0	7	4	9	5	2	4	10	3	5
09	4	2	0	-1	4	6	0	7	4	9	5	-2	4	10	3	5
0a	4	2	0	-1	4	6	0	-7	4	9	6	2	4	10	3	-5
0b	4	2	0	-1	4	6	0	-7	4	9	6	-2	4	10	3	-5
0c	4	2	0	-1	4	6	0	8	4	9	3	3	4	10	2	6
0d	4	2	0	-1	4	6	0	8	4	9	3	-3	4	10	2	6
0e	4	2	0	-1	4	6	0	-8	4	9	4	3	4	10	2	-6
0f	4	2	0	-1	4	6	0	-8	4	9	4	-3	4	10	2	-6
10	4	3	0	2	4	7	5	1	4	9	2	4	4	10	1	9
11	4	3	0	2	4	7	5	-1	4	9	2	-4	4	10	1	9
12	4	3	0	2	4	7	6	1	4	9	2	5	4	10	1	-9
13	4	3	0	2	4	7	6	-1	4	9	2	-5	4	10	1	-9
14	4	3	0	-2	4	7	2	2	4	9	1	8	4	10	1	10
15	4	3	0	-2	4	7	2	-2	4	9	1	-8	4	10	1	10
16	4	3	0	-2	4	7	1	3	4	9	0	18	4	10	1	-10
17	4	3	0	-2	4	7	1	-3	4	9	0	-18	4	10	1	-10
18	1	3	0	0	4	7	1	4	4	9	0	19	4	10	1	11
19	1	3	0	0	4	7	1	-4	4	9	0	-19	4	10	1	11
1a	1	3	0	0	4	7	0	9	4	9	0	20	4	10	1	-11
1b	1	3	0	0	4	7	0	-9	4	9	0	-20	4	10	1	-11
1c	4	4	1	1	4	7	0	10	4	9	0	21	4	10	0	0
1d	4	4	1	1	4	7	0	-10	4	9	0	-21	4	10	0	0
1e	4	4	1	-1	4	7	0	11	4	9	0	22	4	10	1	0
1f	4	4	1	-1	4	7	0	-11	4	9	0	-22	4	10	1	0
20	4	4	0	3	5	8	7	1	0	0	0	0	4	11	6	3
21	4	4	0	3	5	8	8	1	0	0	0	0	4	11	6	-3
22	4	4	0	-3	5	8	9	1	0	0	0	0	4	11	4	4
23	4	4	0	-3	5	8	10	1	0	0	0	0	4	11	4	-4
24	4	4	0	4	5	8	3	2	0	0	0	0	4	11	3	6
25	4	4	0	4	5	8	4	2	0	0	0	0	4	11	3	-6
26	4	4	0	-4	5	8	2	3	0	0	0	0	4	11	1	12
27	4	4	0	-4	5	8	1	5	0	0	0	0	4	11	1	-12
28	4	5	2	1	5	8	1	6	0	0	0	0	4	11	1	13
29	4	5	2	-1	5	8	1	7	0	0	0	0	4	11	1	-13
2a	4	5	1	2	5	8	0	12	0	0	0	0	4	11	1	14
2b	4	5	1	-2	5	8	0	13	0	0	0	0	4	11	1	-14
2c	4	5	0	5	5	8	0	14	0	0	0	0	4	11	2	0
2d	4	5	0	-5	5	8	0	15	0	0	0	0	4	11	3	0
2e	4	5	0	6	5	8	0	16	0	0	0	0	4	11	4	0
2f	4	5	0	-6	5	8	0	17	0	0	0	0	4	11	5	0
30	0	0	0	0	0	0	0	0	0	0	0	0	5	12	7	2
31	0	0	0	0	0	0	0	0	0	0	0	0	5	12	8	2
32	0	0	0	0	0	0	0	0	0	0	0	0	5	12	9	2
33	0	0	0	0	0	0	0	0	0	0	0	0	5	12	10	2
34	0	0	0	0	0	0	0	0	0	0	0	0	5	12	7	3
35	0	0	0	0	0	0	0	0	0	0	0	0	5	12	8	3
36	0	0	0	0	0	0	0	0	0	0	0	0	5	12	4	5
37	0	0	0	0	0	0	0	0	0	0	0	0	5	12	3	7
38	0	0	0	0	0	0	0	0	0	0	0	0	5	12	2	7
39	0	0	0	0	0	0	0	0	0	0	0	0	5	12	2	8
3a	0	0	0	0	0	0	0	0	0	0	0	0	5	12	2	9
3b	0	0	0	0	0	0	0	0	0	0	0	0	5	12	2	10
3c	0	0	0	0	2	12	0	0	0	0	0	0	5	12	2	11
3d	0	0	0	0	2	12	0	0	0	0	0	0	5	12	1	15
3e	0	0	0	0	3	15	0	0	0	0	0	0	5	12	1	16
3f	0	0	0	0	3	15	0	0	0	0	0	0	5	12	1	17
40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
...	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ff	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Fig. 62

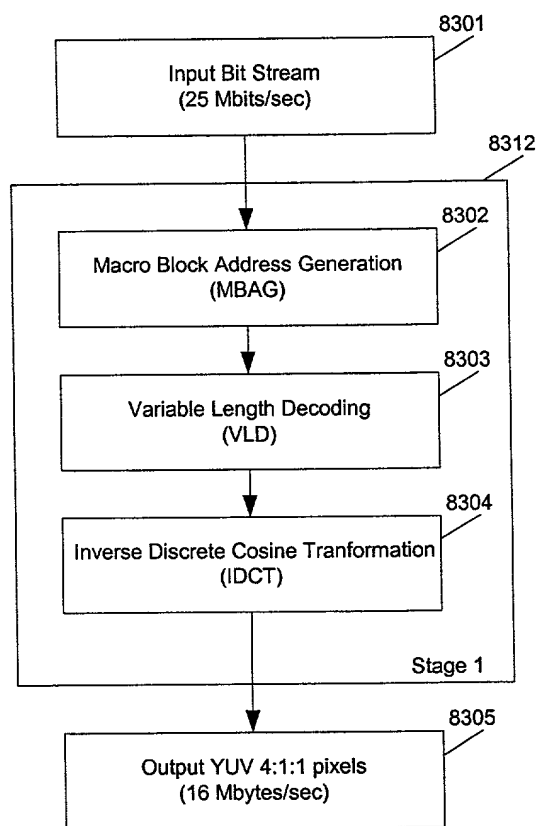


Fig. 63

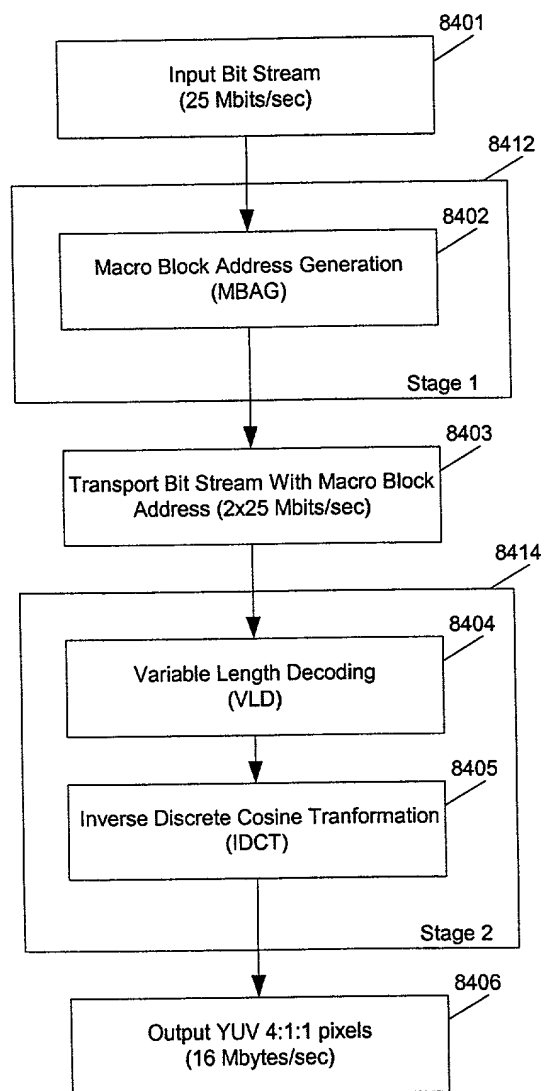


Fig. 64

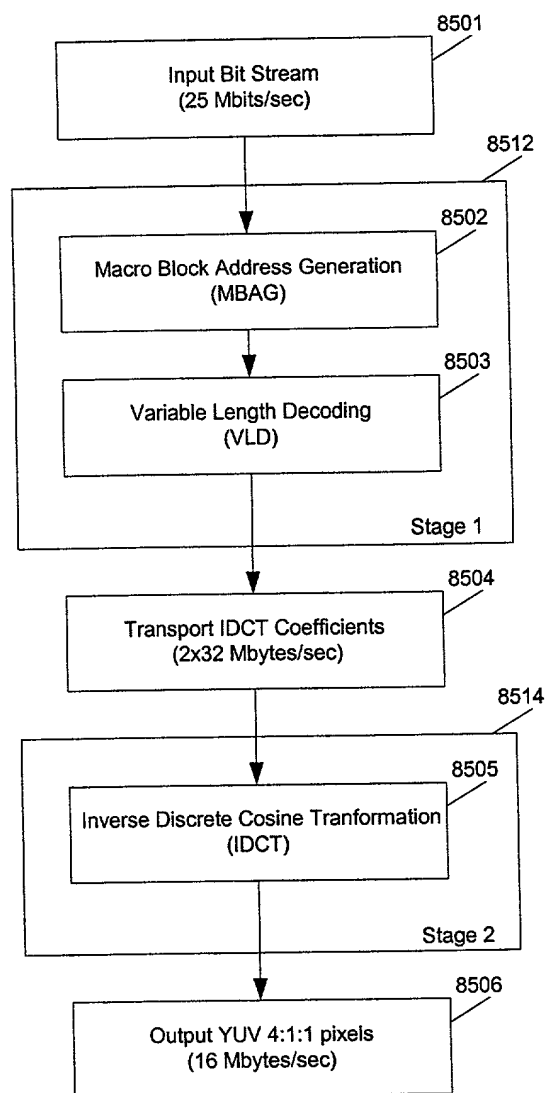


Fig. 65

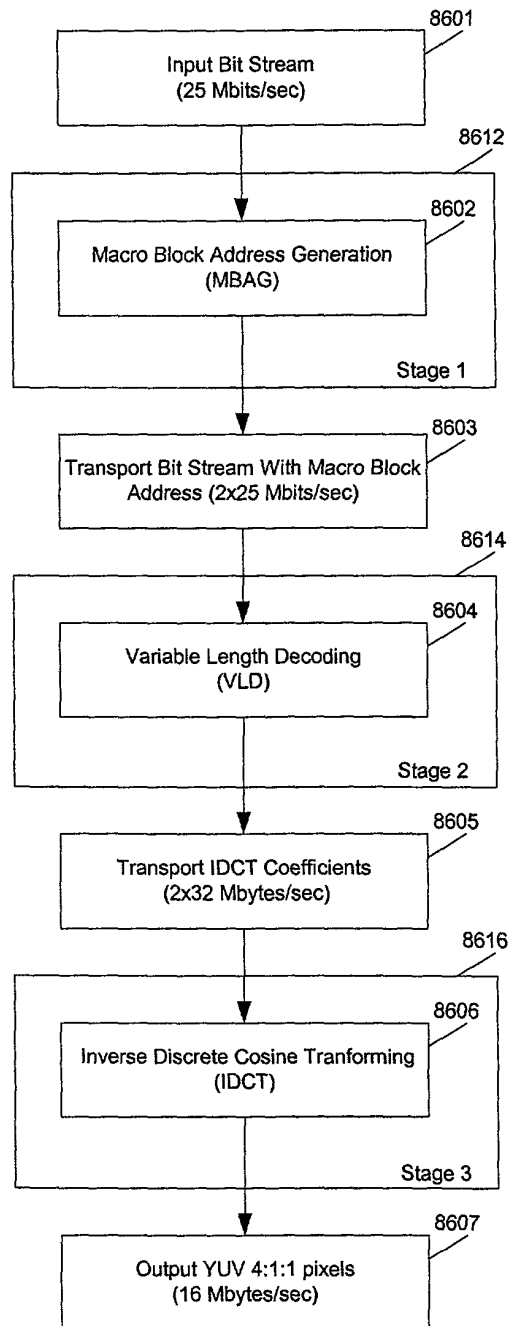


Fig. 66

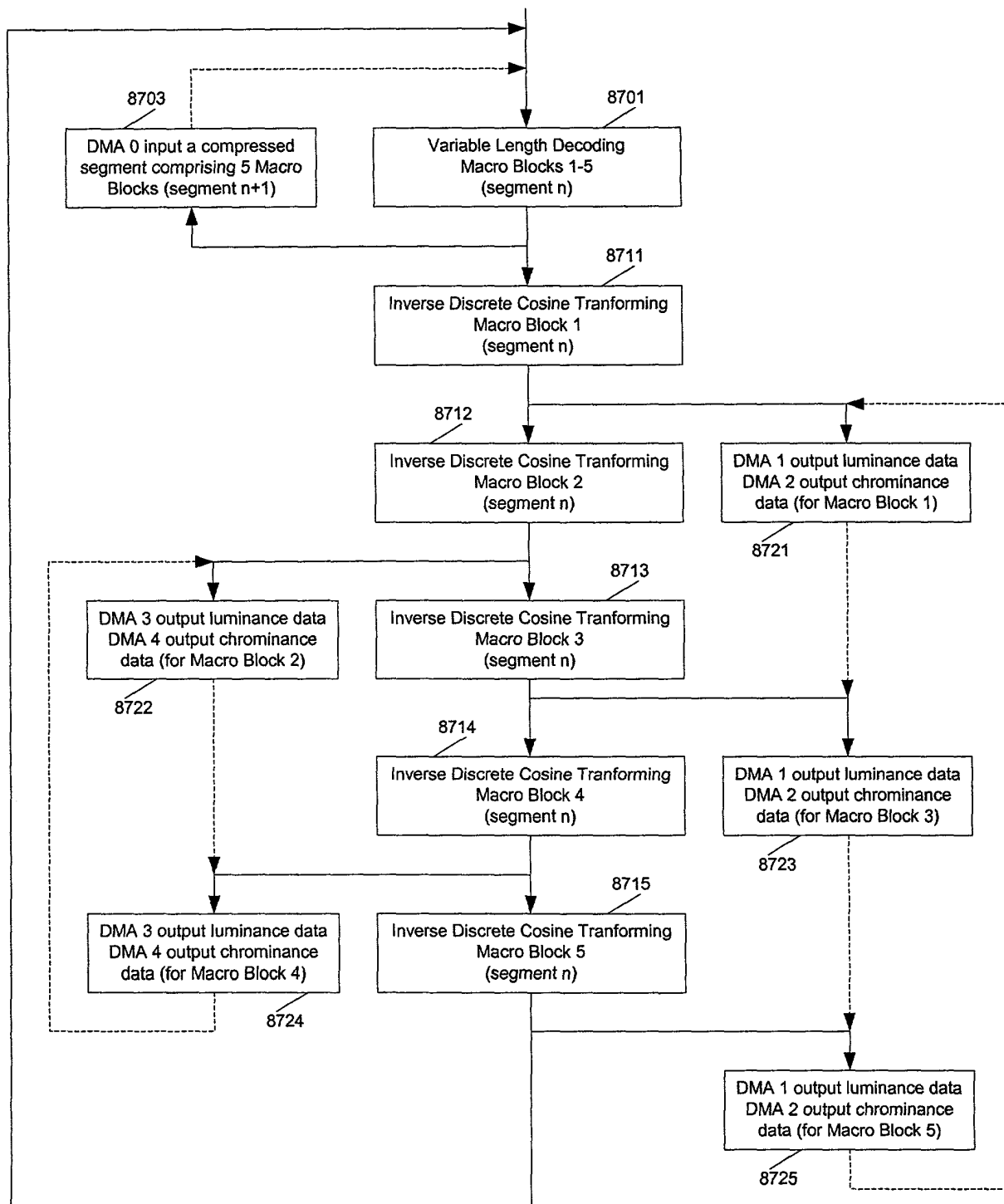


Fig. 67

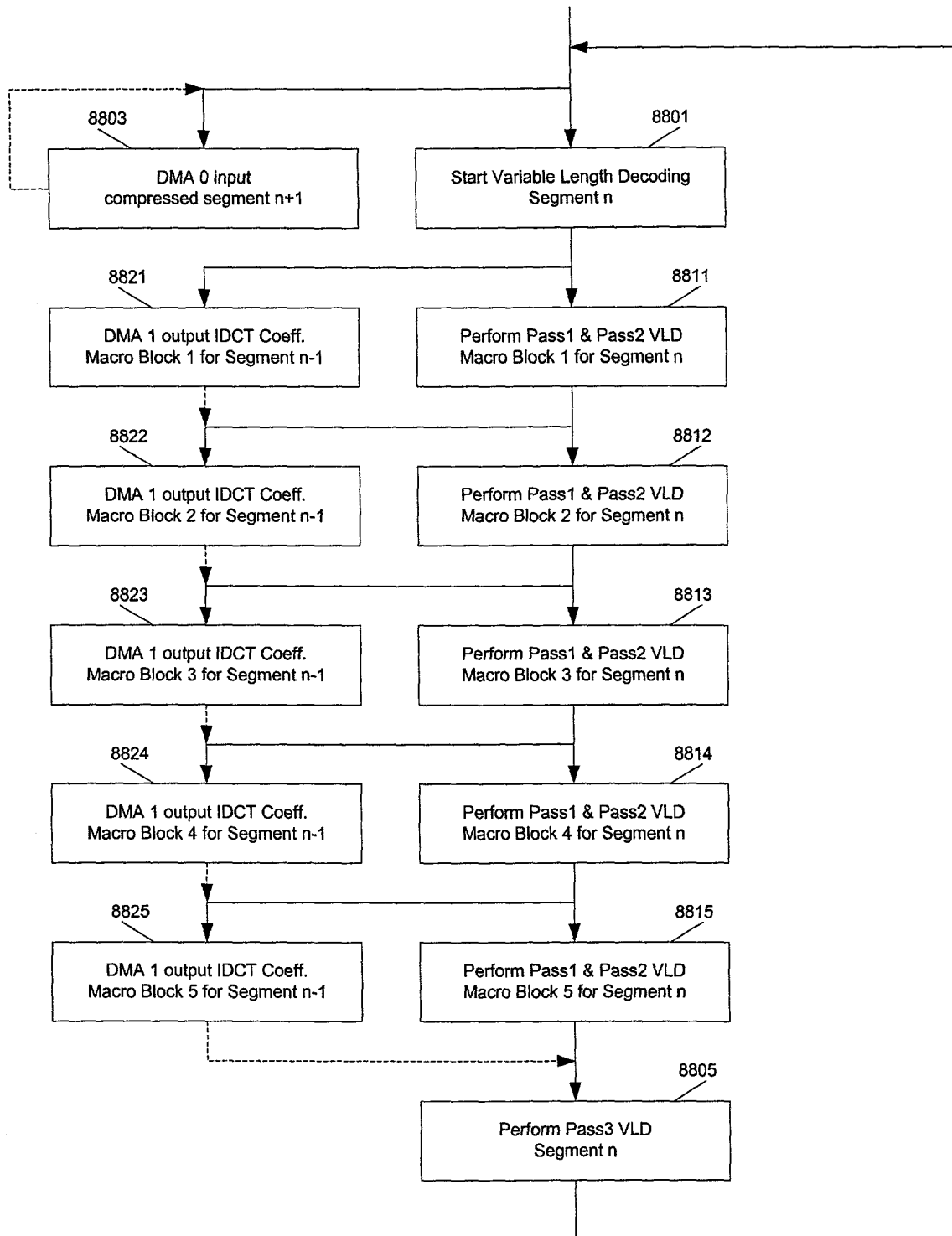


Fig. 68



1003393-1001

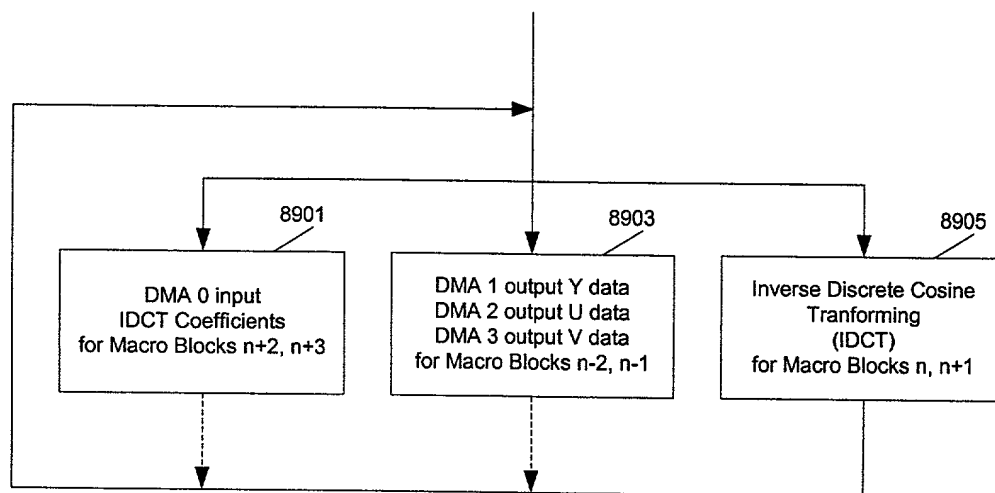


Fig. 69

FIG. 70

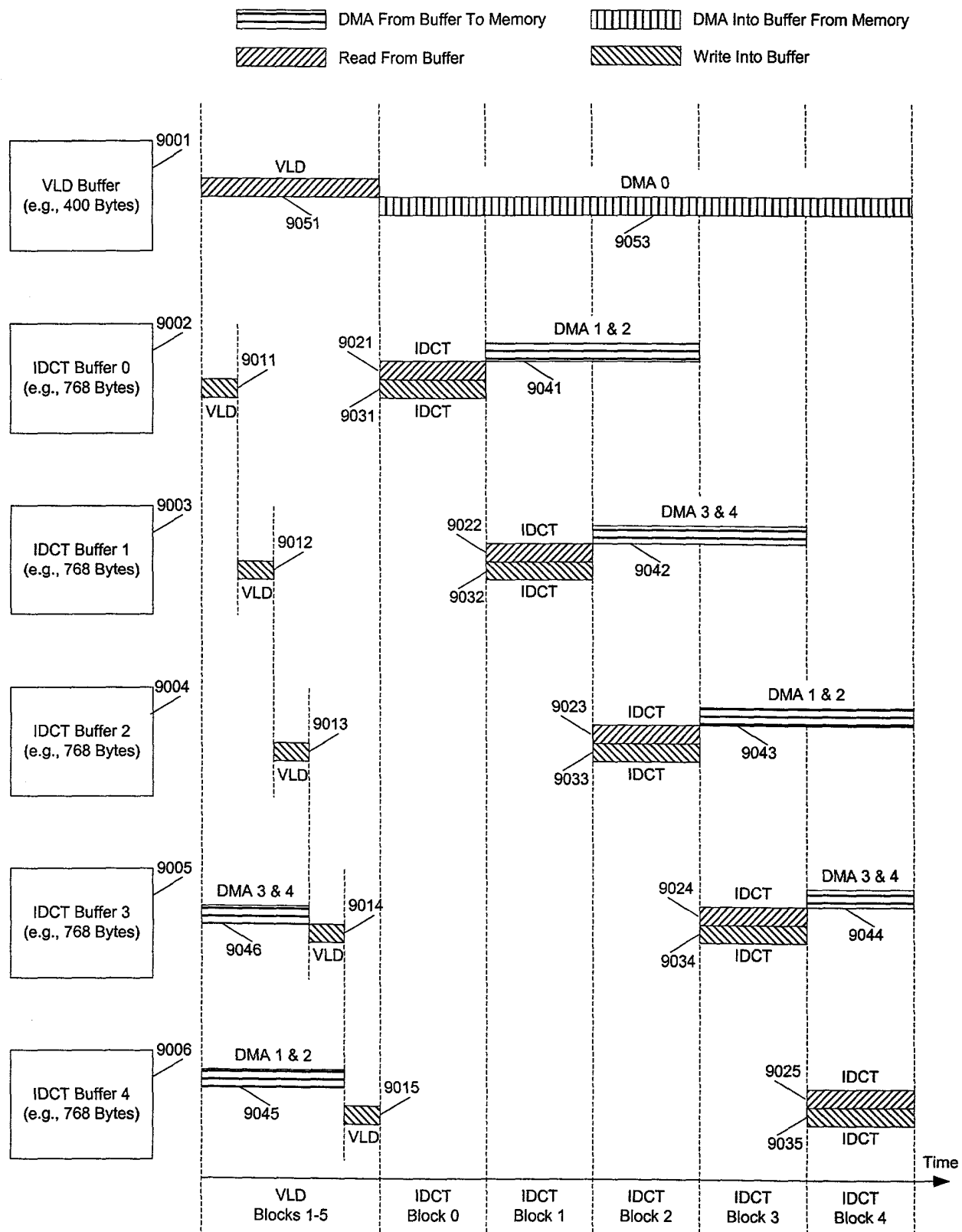


Fig. 70

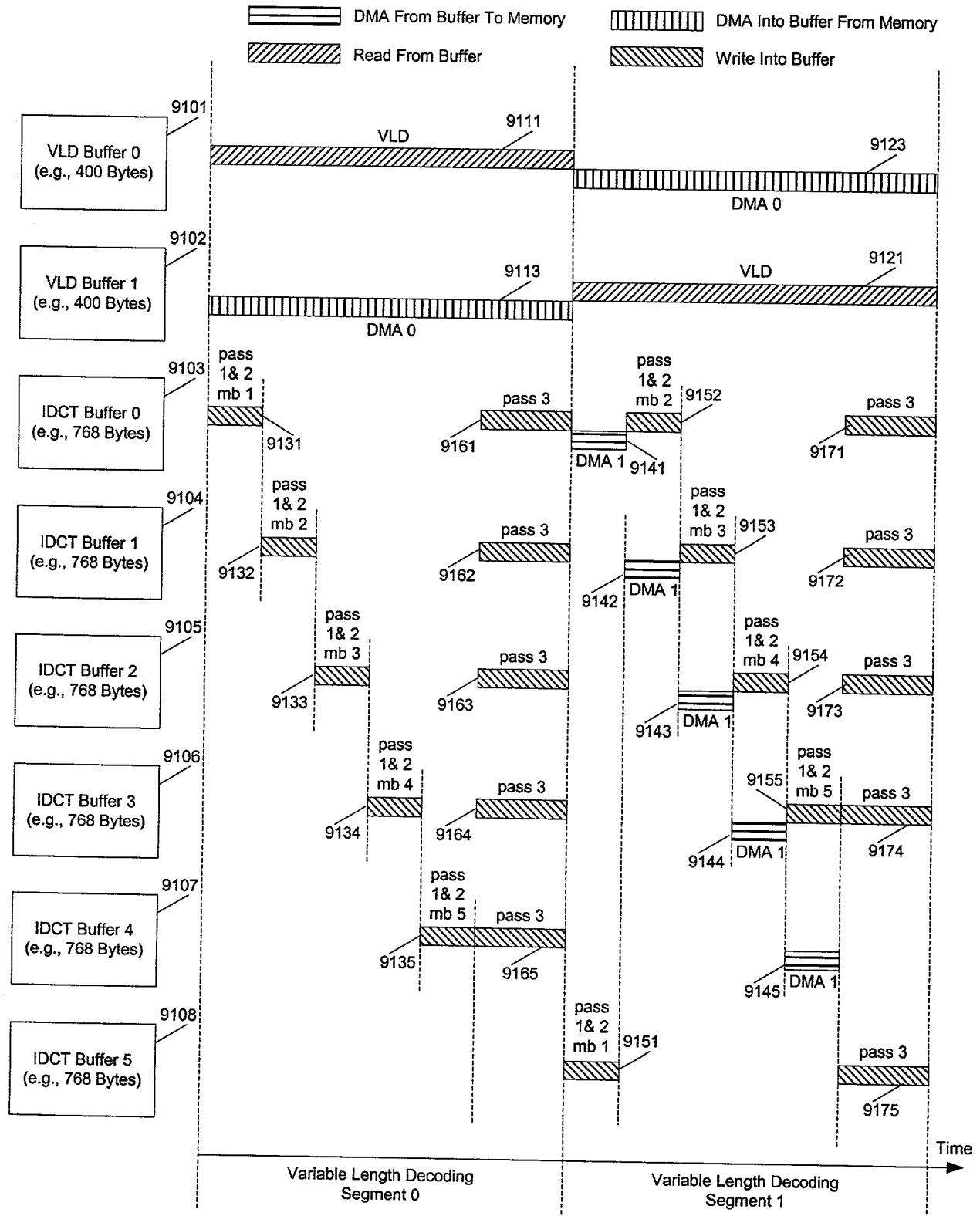


Fig. 71

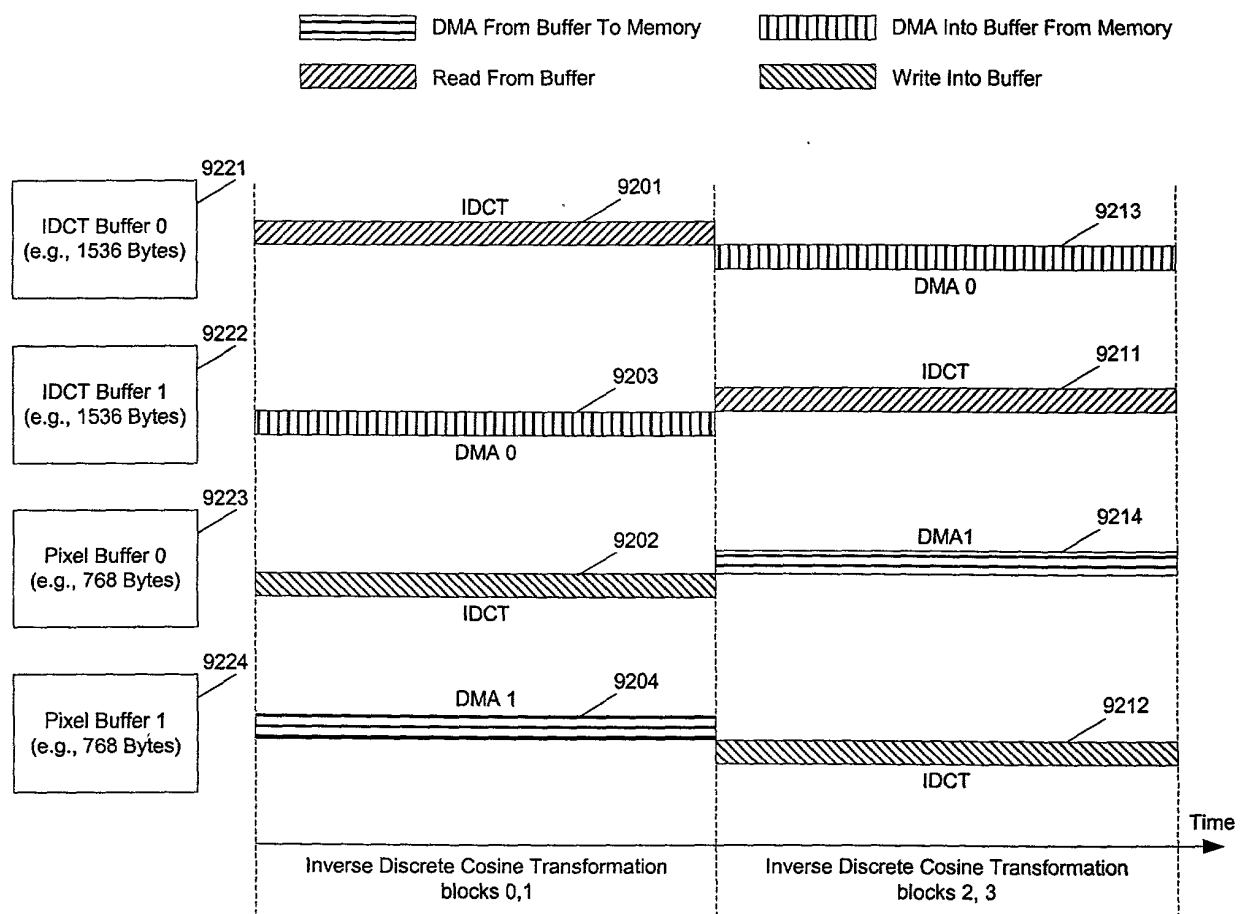


Fig. 72

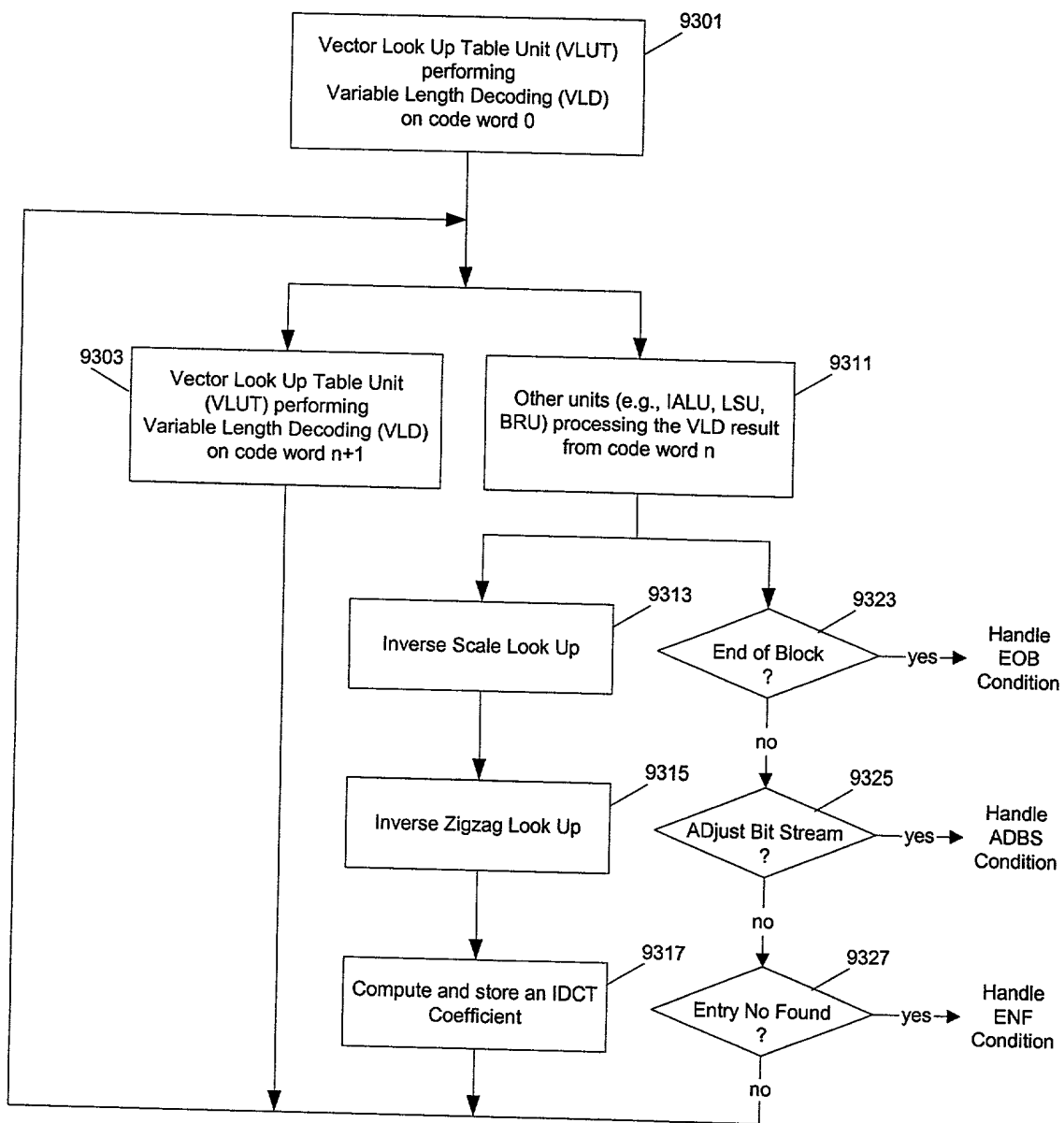


Fig. 73

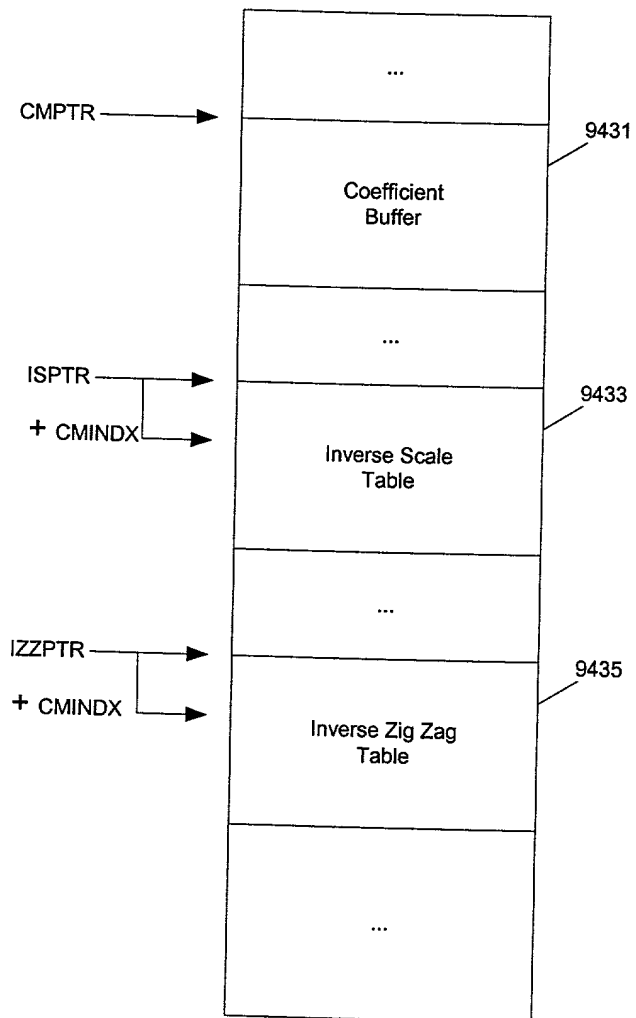
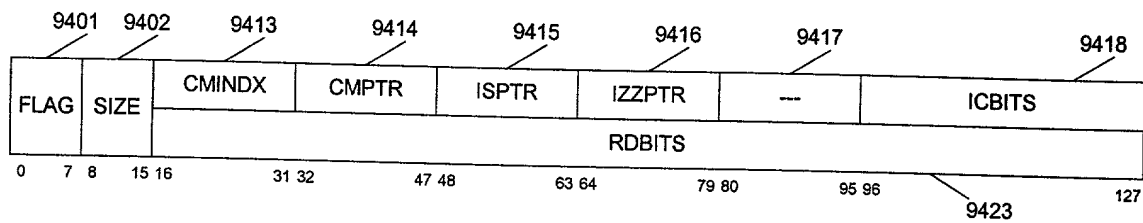
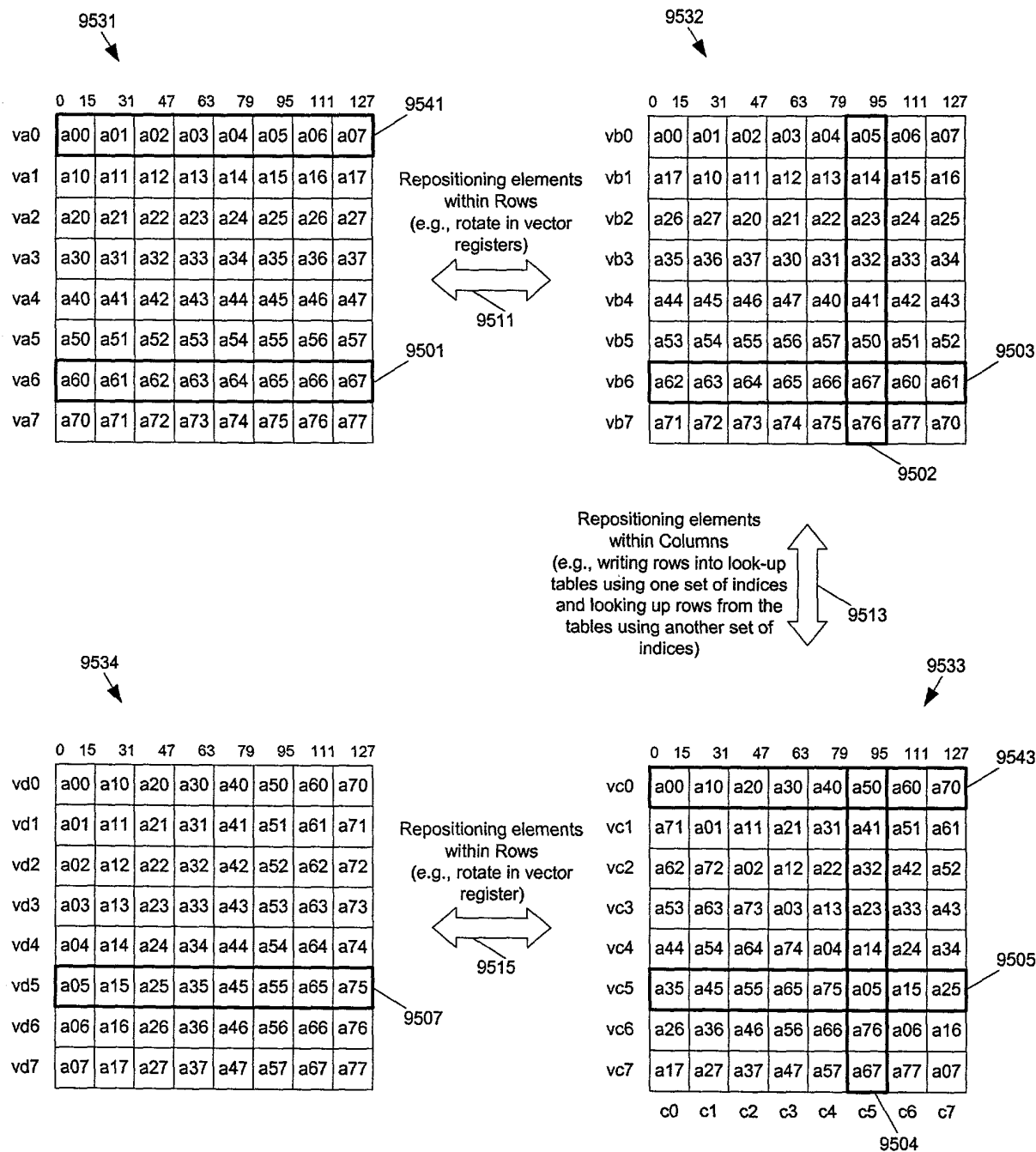


Fig. 74



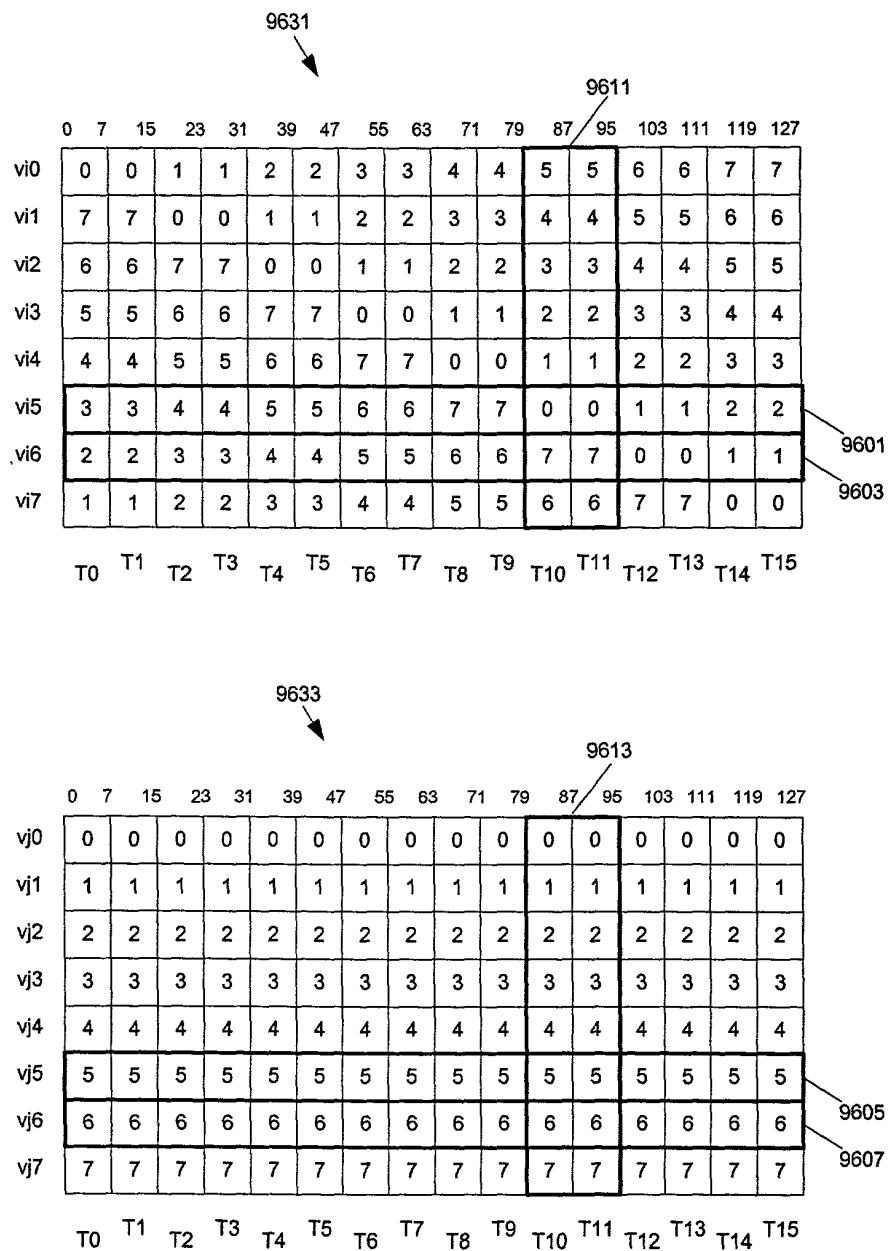


Fig. 76



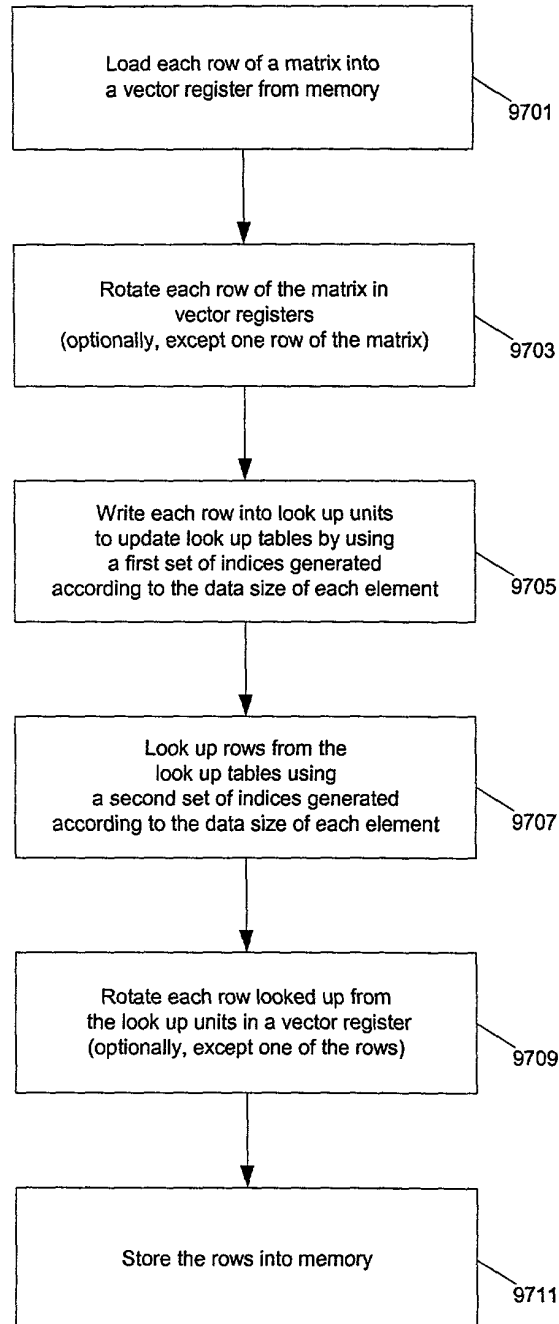


Fig. 77

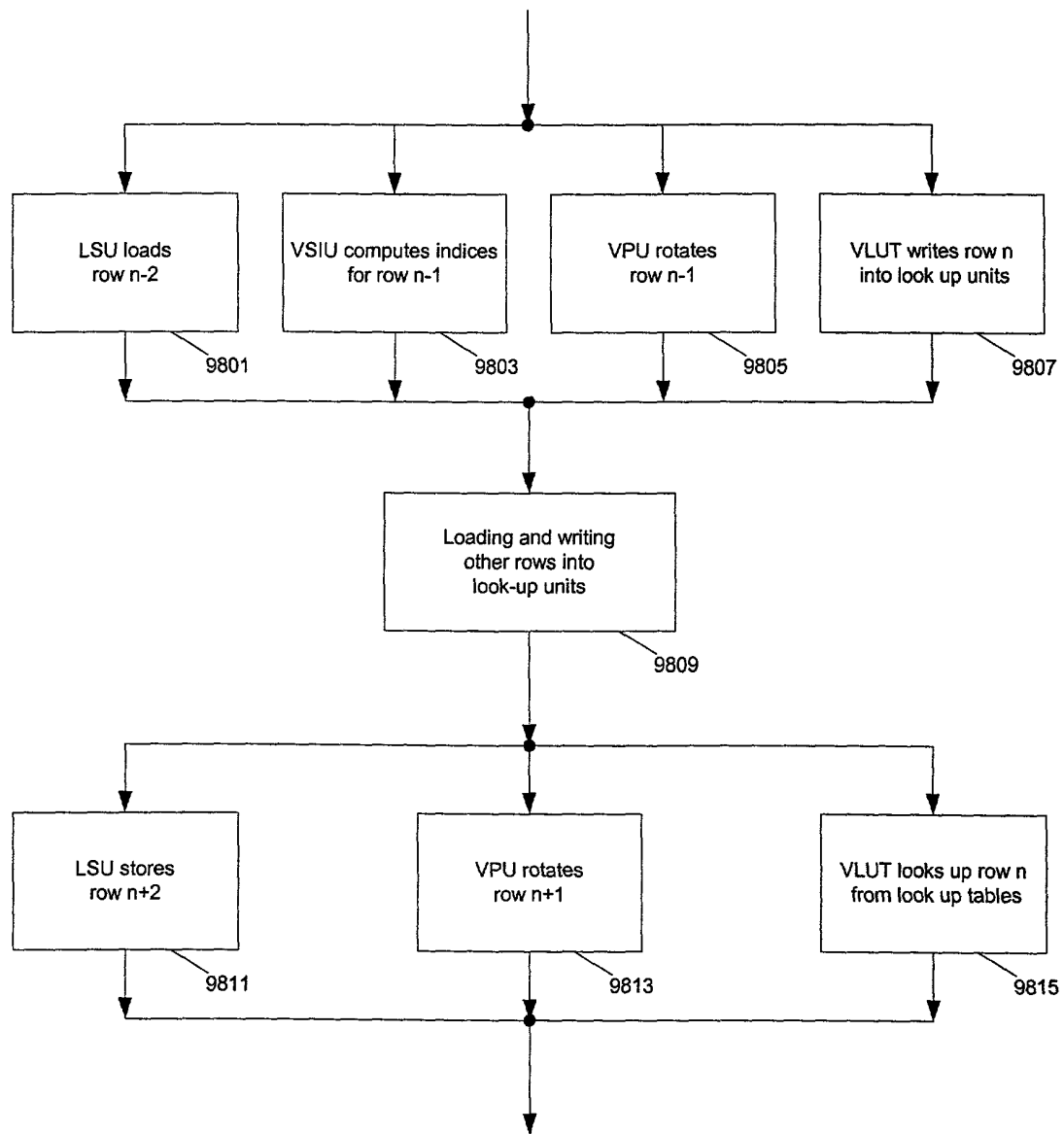


Fig. 78

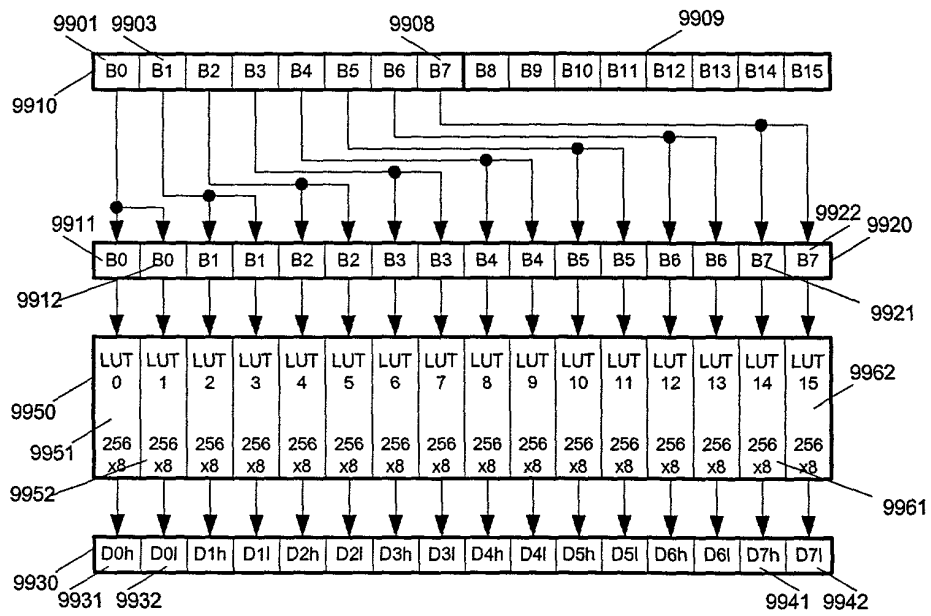


Fig. 79

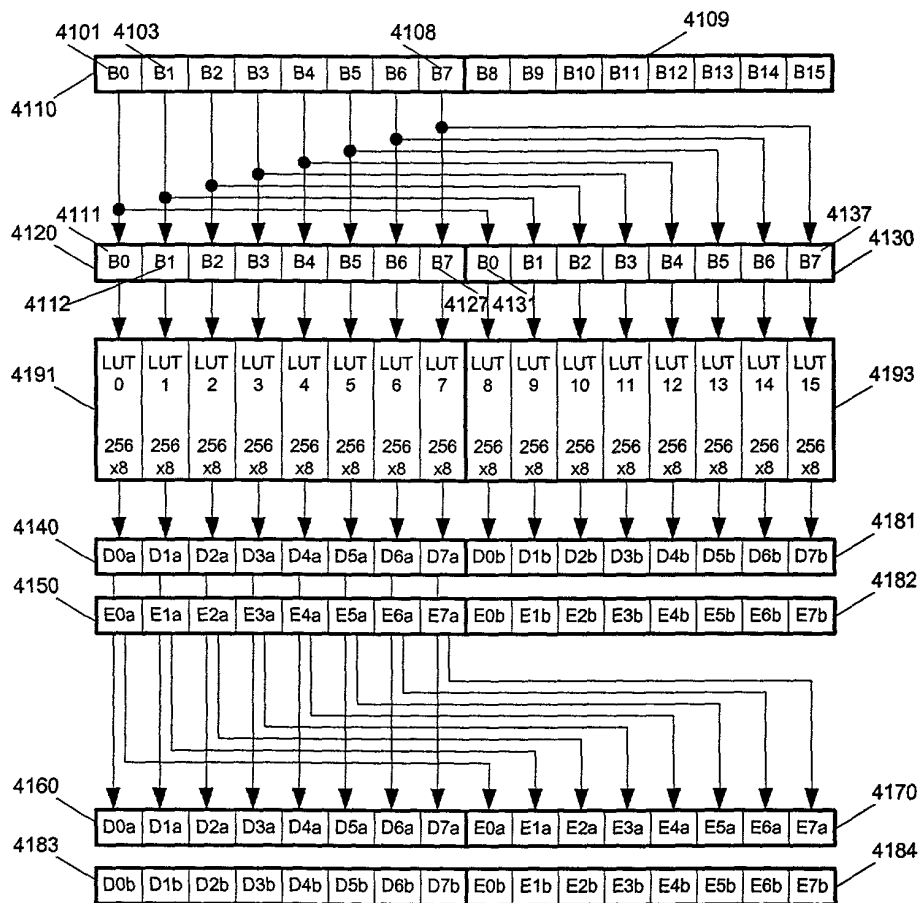


Fig. 80

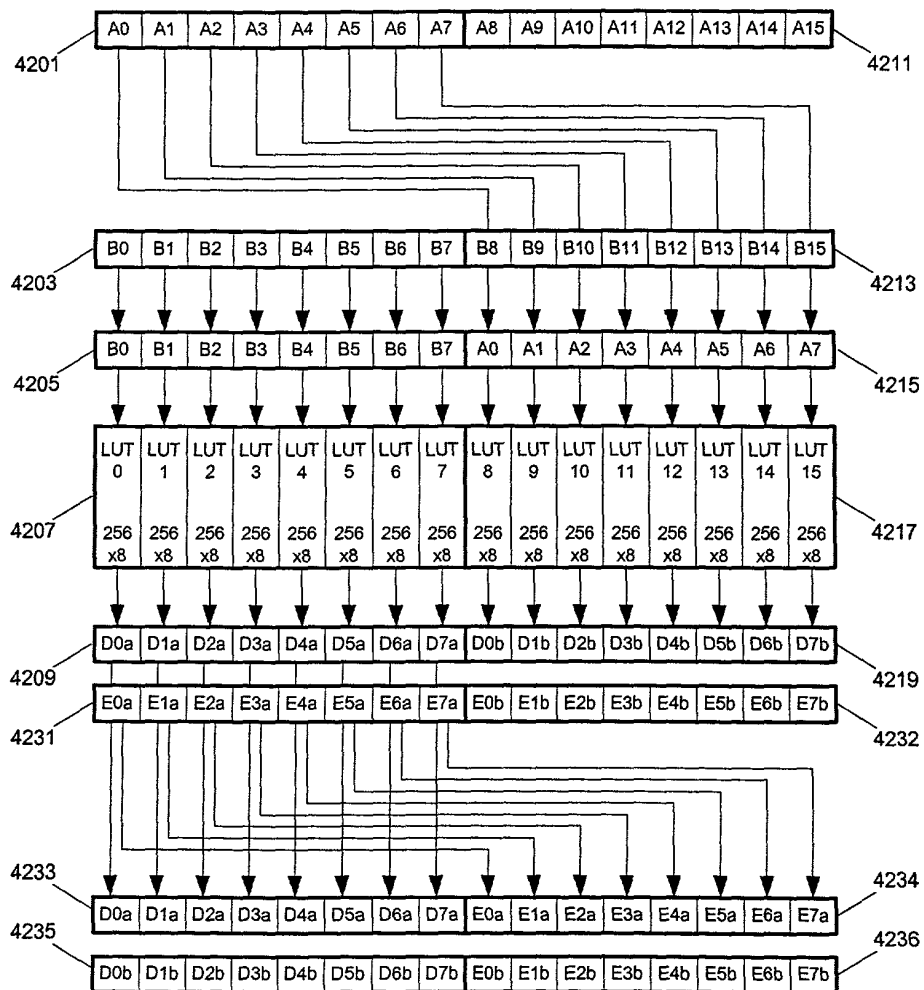


Fig. 81

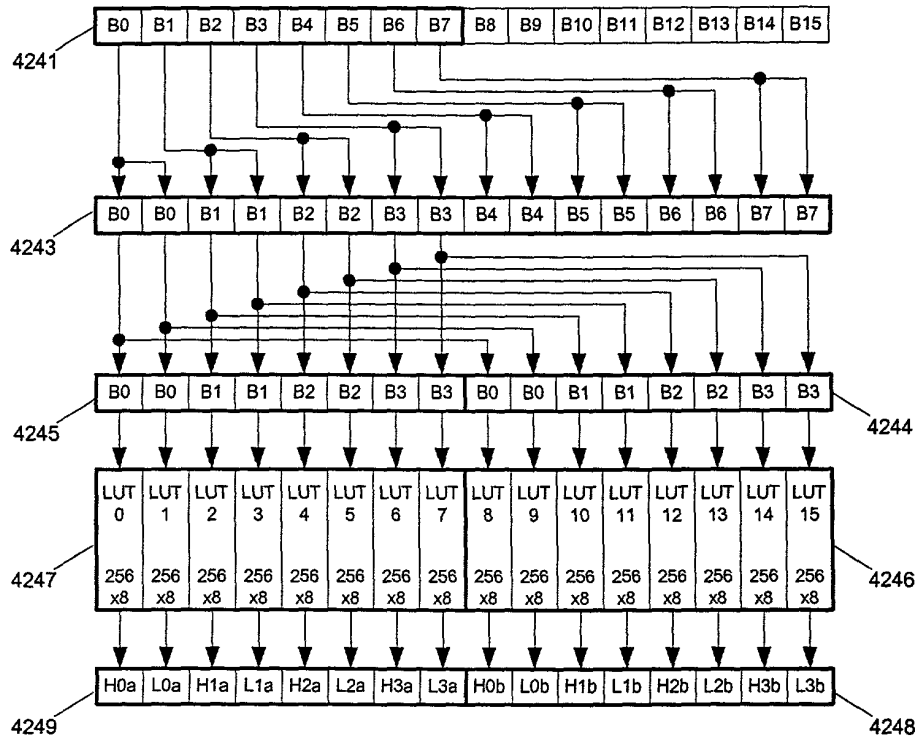


Fig. 82

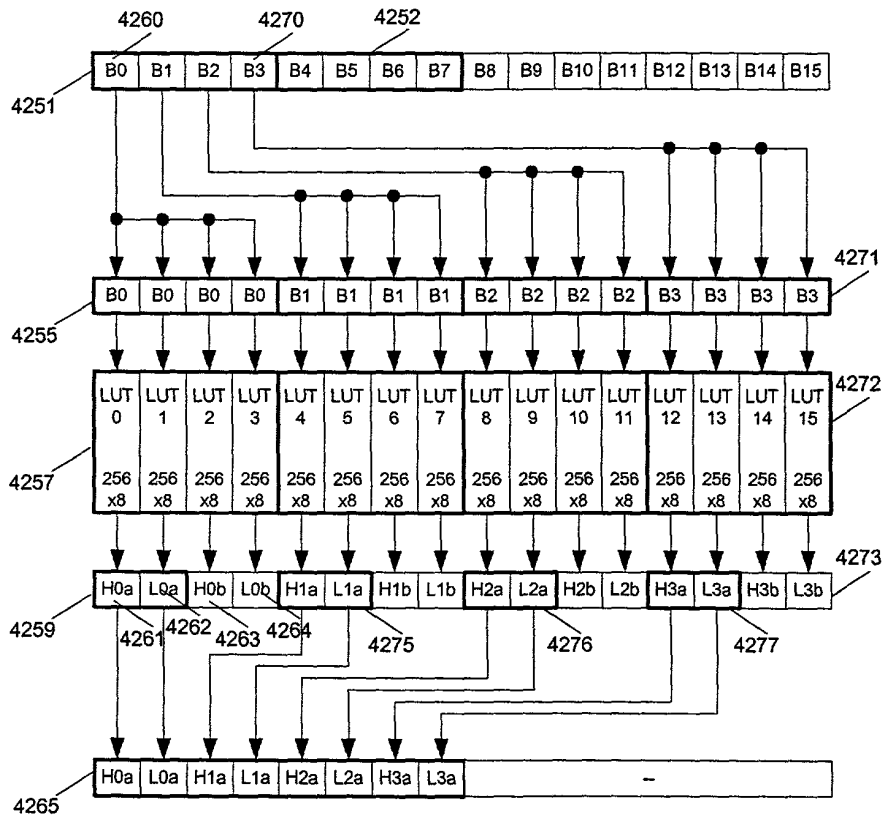


Fig. 83

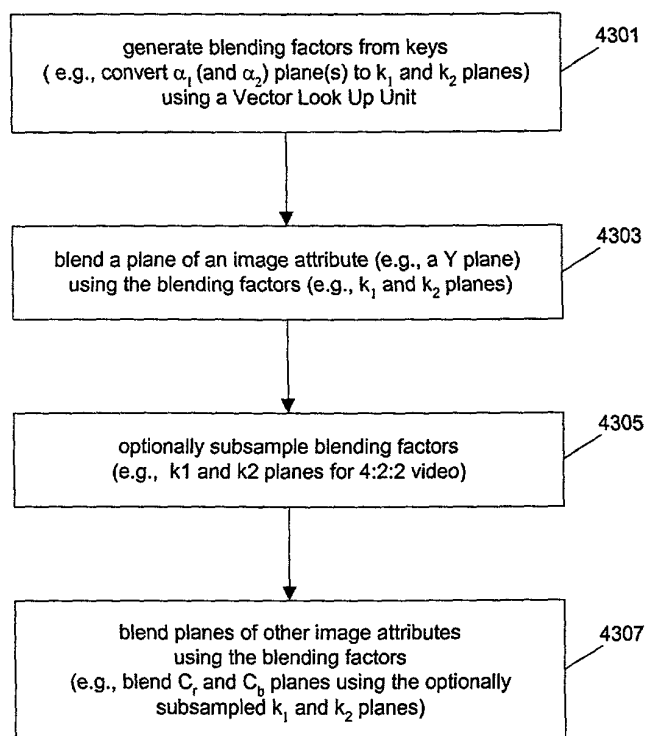


Fig. 84



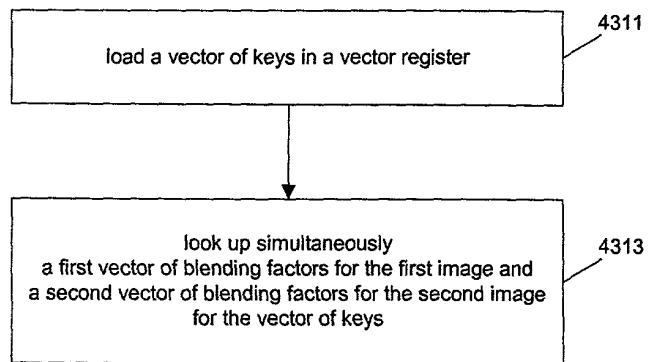


Fig. 85

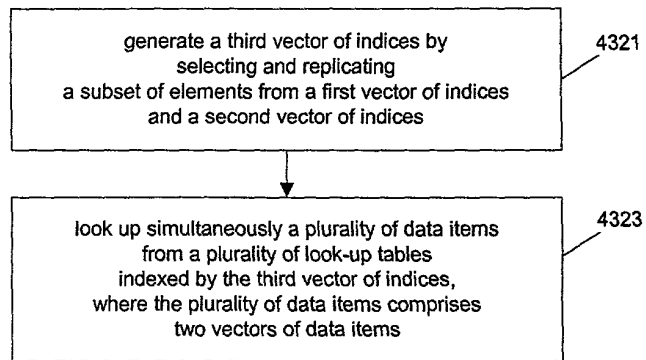


Fig. 86

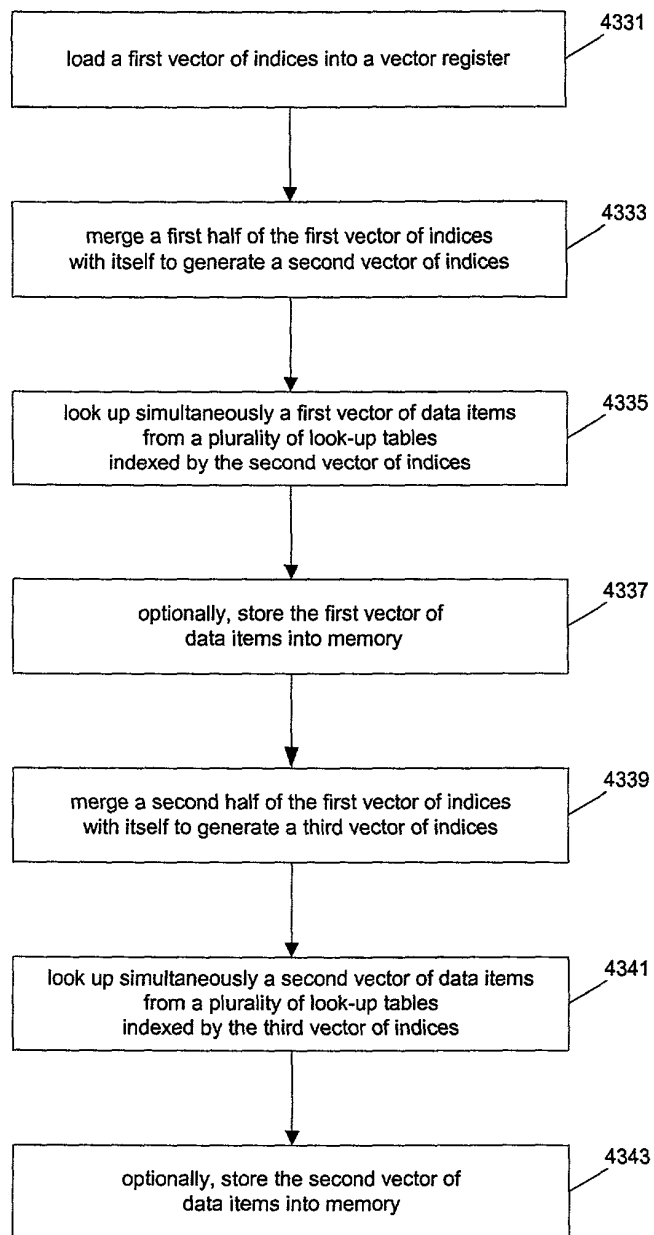


Fig. 87

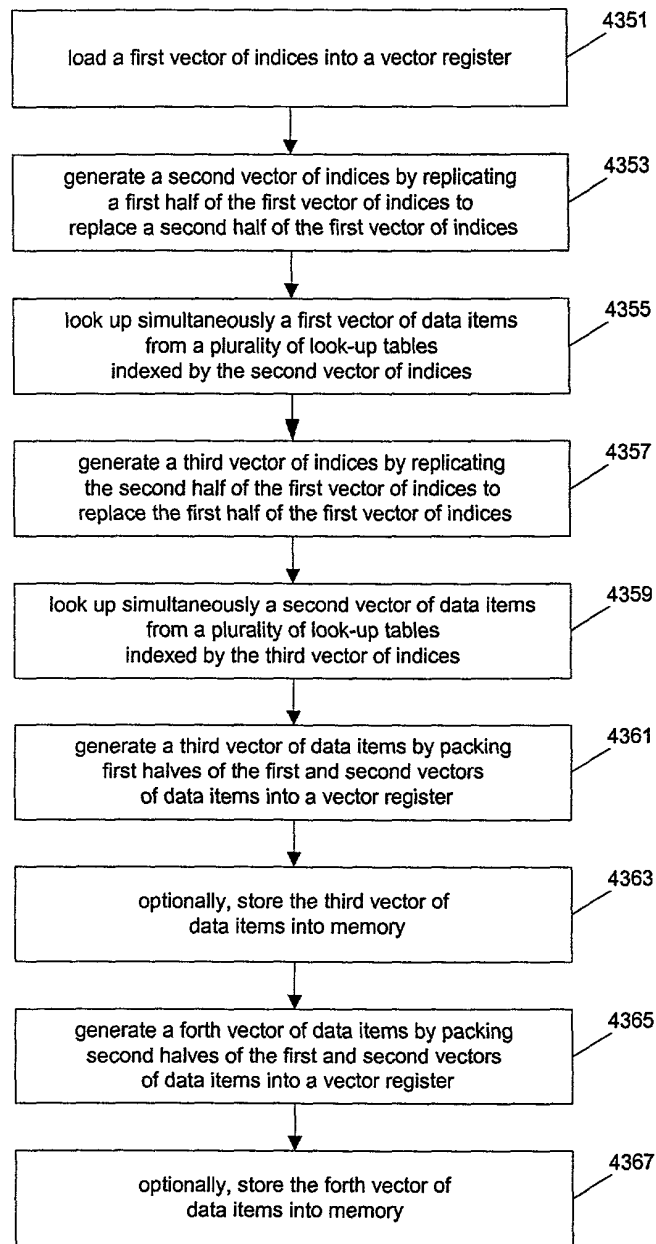


Fig. 88

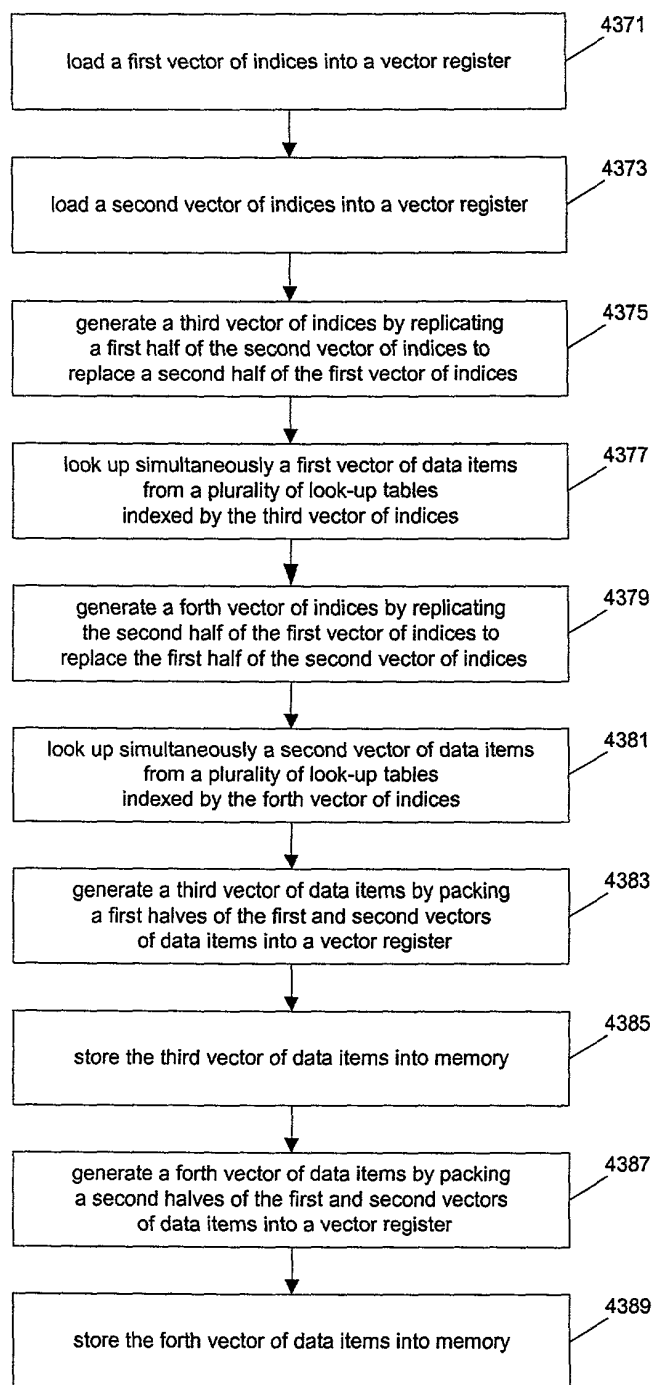


Fig. 89

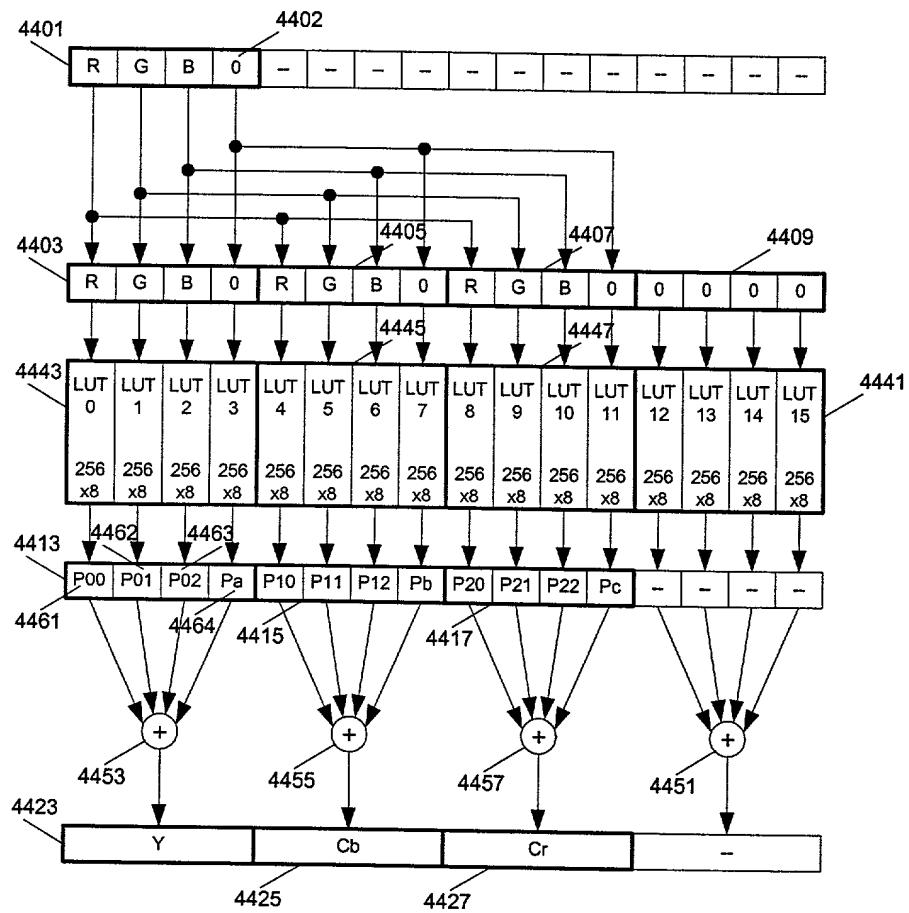


Fig. 90

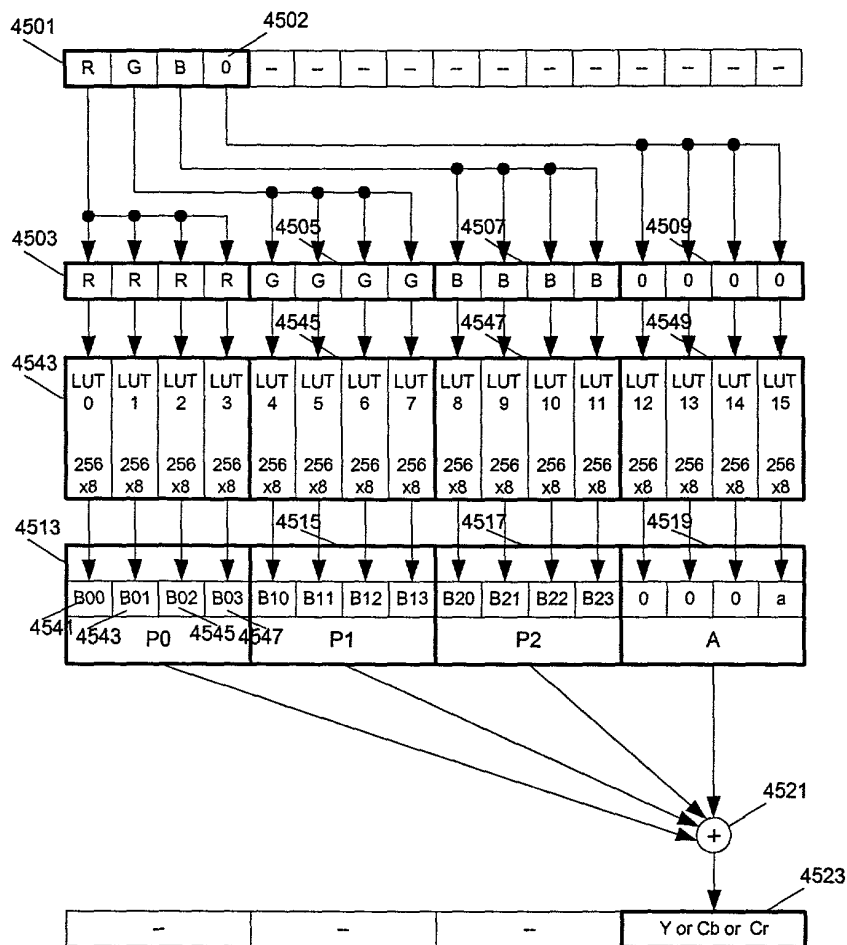


Fig. 91

FIG. 92

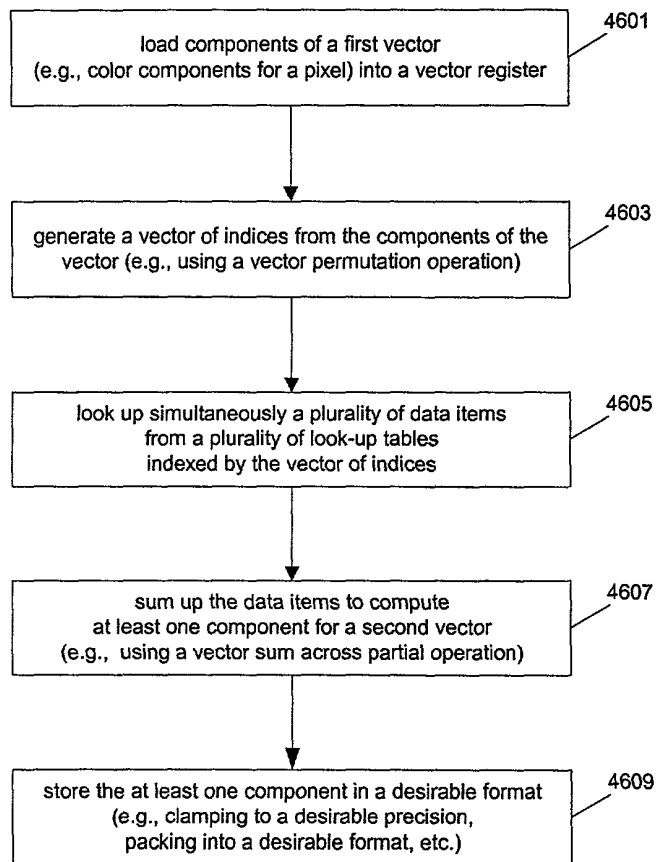


Fig. 92



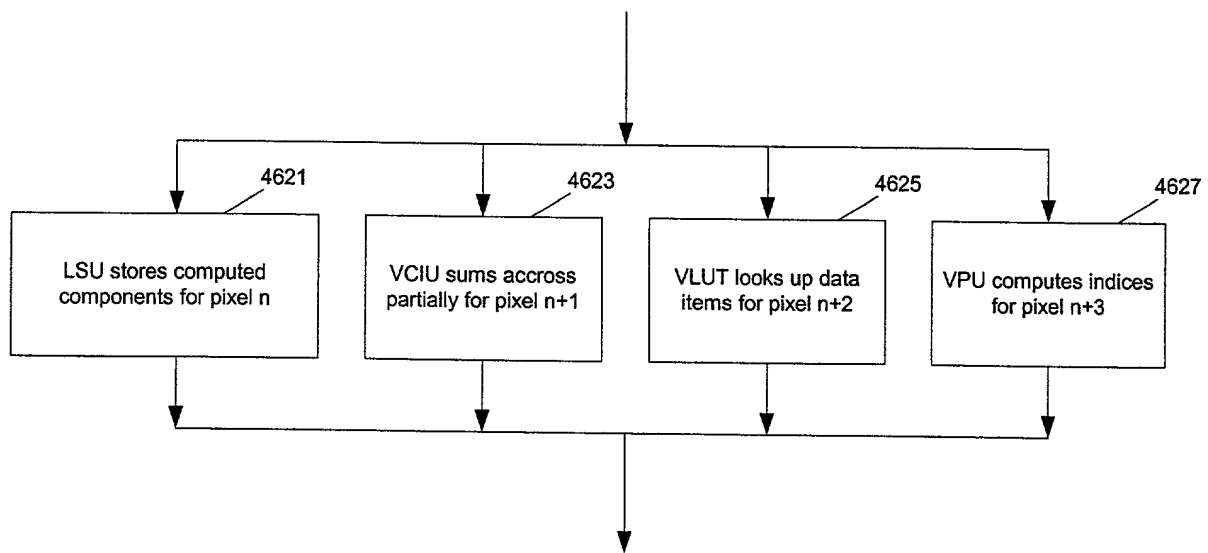


Fig. 93

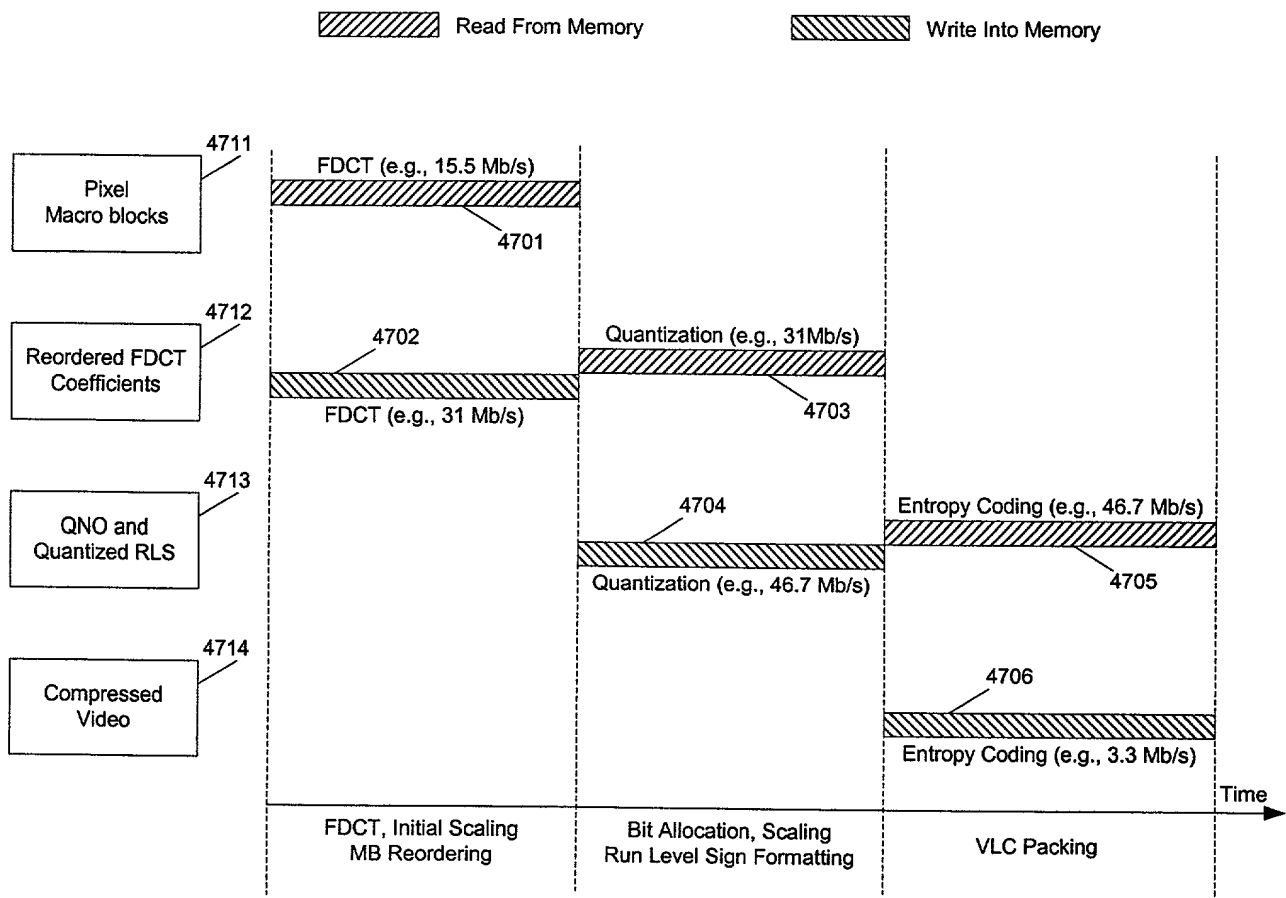


Fig. 94

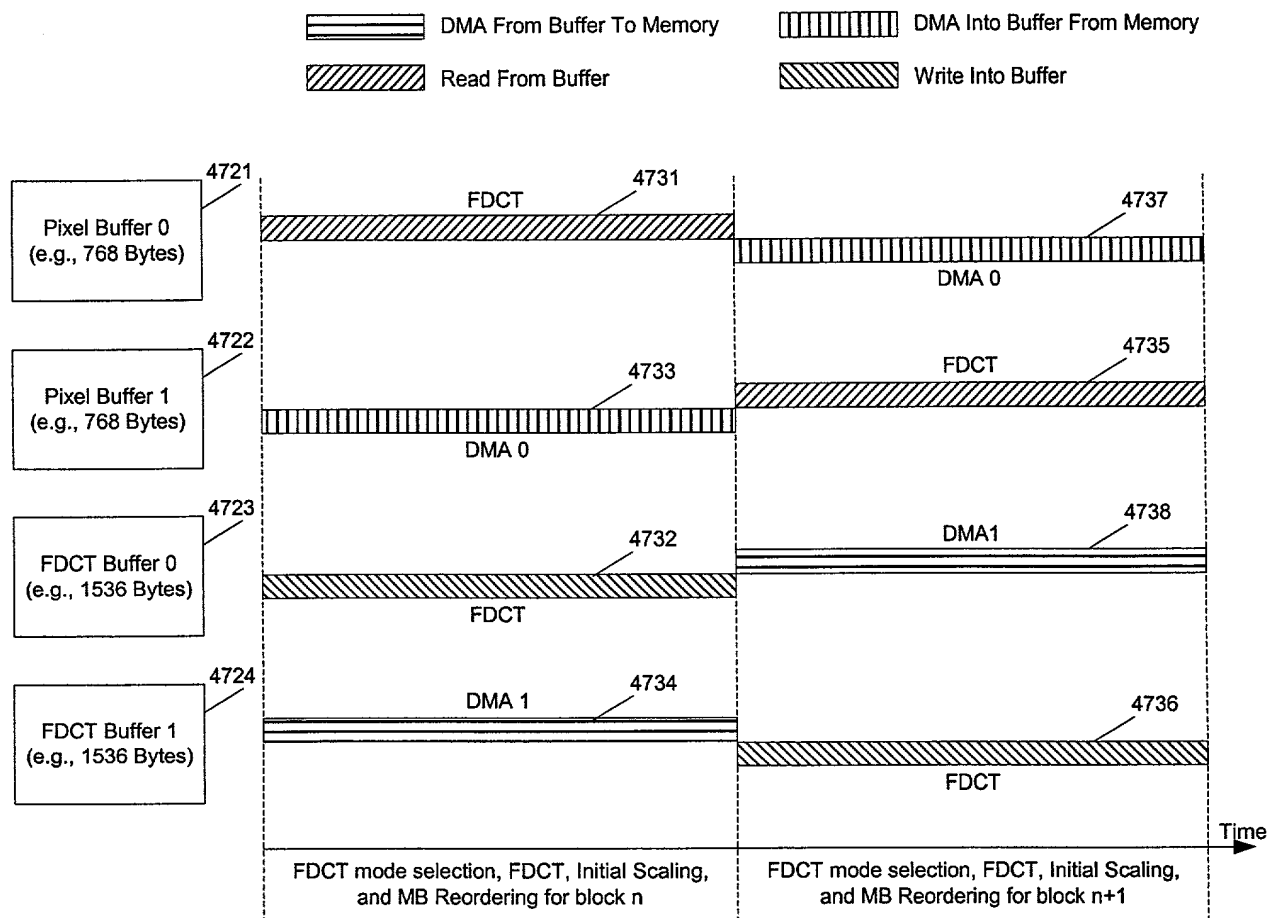


Fig. 95

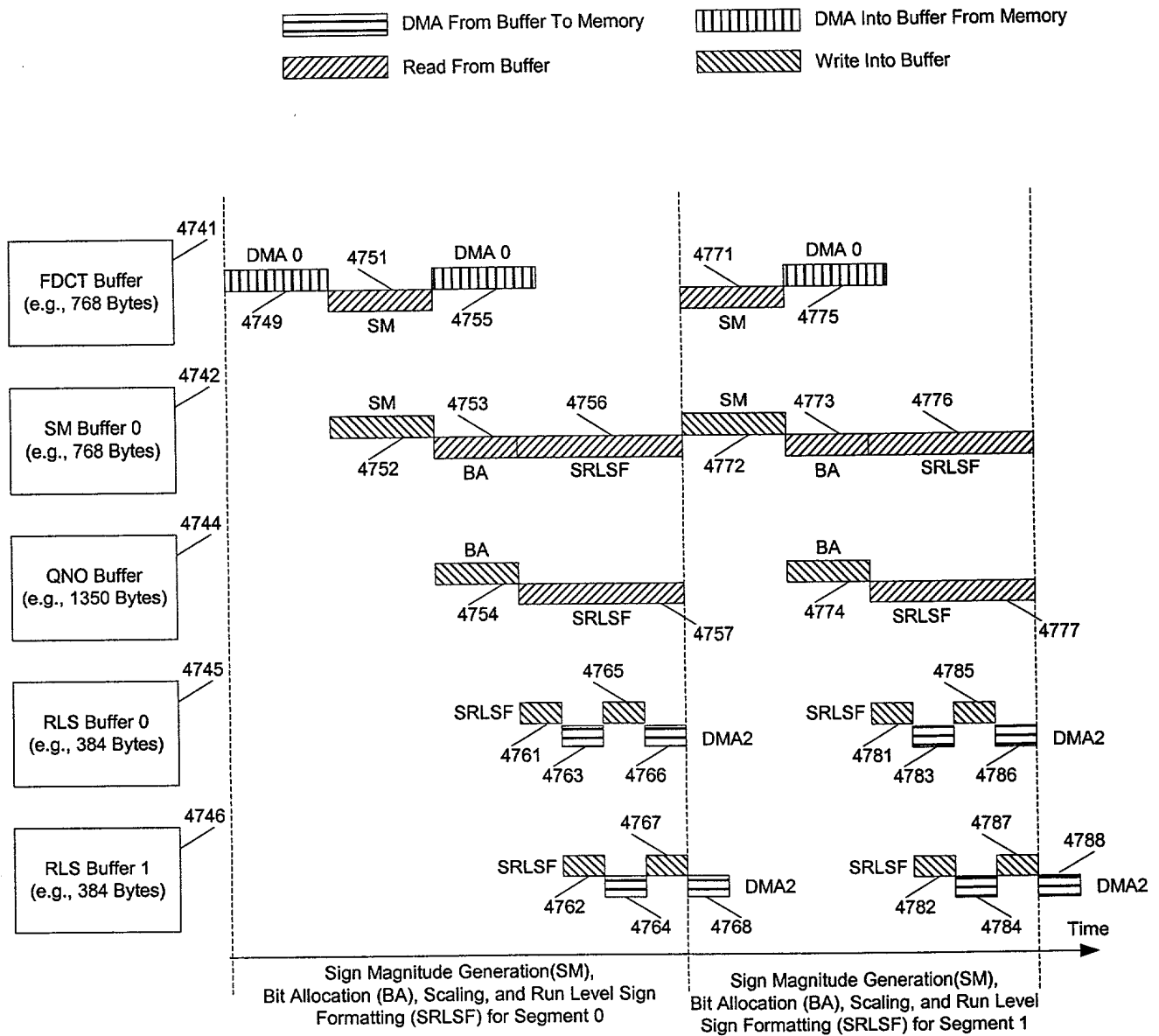


Fig. 96

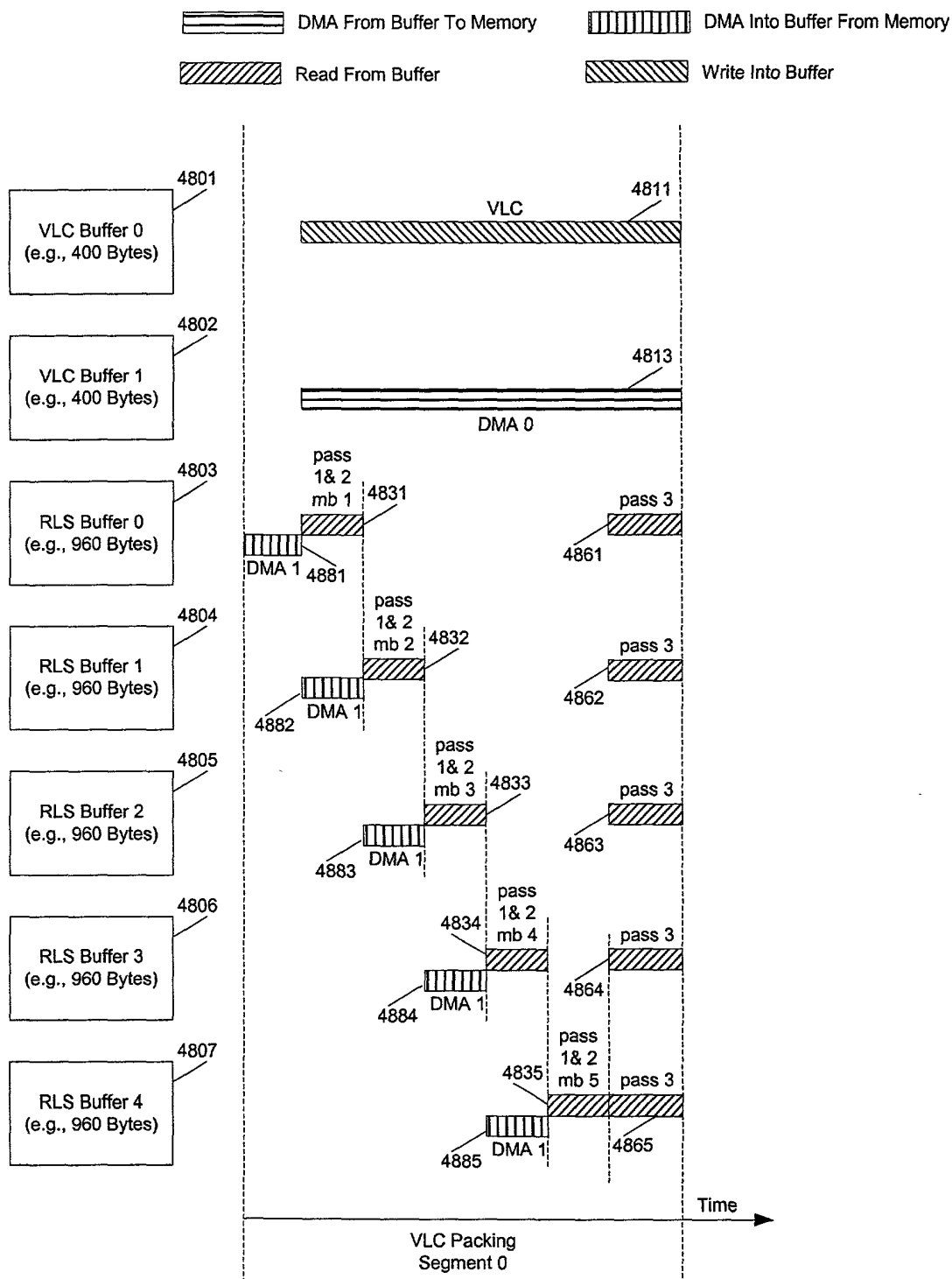


Fig. 97